2013

# The LNG Industry

GIIGNL

# The LNG Industry in 2013

## *Editorial*

Over the years our annual statistical report about "The LNG Industry" has become a reference document and convenient source of information on LNG to companies, analysts and researchers. It is widely distributed and downloaded from our website, thus validating our group's contribution to a better understanding of the LNG industry.

We hope you will find this 2013 issue equally helpful in your analyses and search for information.

In 2013 the LNG markets remained extremely tight due to the demand pull from nuclear closures in Japan and South Korea and the difficulties to ramp-up production of new facilities in Angola and Algeria, bringing LNG price levels in the Far East to record highs in the first quarter.

In addition to Chenière's Sabine Pass, three new liquefaction projects received full approvals in the U.S.A. last year, confirming the country's path to become the world's third largest LNG exporter by the end of the decade. Cameron joined their ranks in early 2014 so that at the time of this writing, a total 62.5 Mt/y of capacity have been approved to export to non-FTA countries by the Department of Energy, already impacting the LNG industry, if not in physical volume then in contracting strategy.

2013 could be considered a transition year. LNG traded volumes as a whole remained at the same level as in 2012, but new trade patterns seem to emerge. The past year may have seen a slowdown in the number of FIDs, counting only one greenfield (Yamal LNG) and two expansion projects, but not in capacity increase with a respectable 29 Mt/y committed in total.

Demand remained strong in Asia, mainly in China and South Korea. In Japan, imports continued to increase, although more moderately in a response to high prices and the yen devaluation, shifting the energy mix towards other sources of energy. Demand also increased in South America, strongly related to weather factors.

Europe remained the swing provider to the world's LNG market. In a context of depressed local demand and with the utilization rate of the regasification terminals in their region at a historical low, European players continued with innovative transactions in search for business (such as re-loadings, two-port loadings, ship-to-ship transfers) while developing new markets for LNG as a transportation fuel.

Three new countries joined the ranks of LNG importers in 2013: Israel, Malaysia, and Singapore.

Total production remained basically unchanged compared to 2012, mainly due to unplanned outages in Angola, Norway and Nigeria, political unrest in some countries and the shortfall in feed gas, particularly in Egypt as priority was given to domestic consumption. Production curtailment also affected the availability of flexible LNG and hence the volume of short term trade, though showing a small growth versus last year, in absolute terms and as a percentage of total trade.

Looking at the medium to long-term, strong demand in Asia is expected to continue, especially in emerging markets, driven among others by China, with 4 terminalling projects under construction with a combined capacity of 12 Mt/y. Worldwide, more than 25 new terminals or terminal expansions are under construction with possible start-up by the end of 2015.

The pace of nuclear restarts in Japan and the role of nuclear in South Korea, factors not yet fully determined, will have a crucial impact on other LNG markets, in Asia and elsewhere.

On the supply side, markets should remain tight until 2016, depending mostly on the completion performance of the Australian projects. From 2017 onwards we should expect a steep LNG supply growth in several regions (North America, Australia, East Africa, Russia) competing for the demand growth in Asia, South America and possibly the Middle East.

New supply sources will bring more diversification and enhanced security of supply for buyers and could lead to a rebalancing of market forces. In Asia, the keyword is diversification: diversification of supply sources and of pricing, with indexation being viewed as a solution for high price levels. The expected new wave of exports from the U.S.A. may put pressure on oil-linked pricing though the latter remains key to the development of many new high cost projects. At the time of this writing, new LNG capacities from Australia and U.S.A. have already largely been underwritten. This does not apply yet for Canada and East Africa.

Players are increasingly looking for flexibility and cost reductions. In this context, floating LNG projects are in the limelight. With four new deliveries in 2013, the FSRU fleet is developing at a fast pace, while on the liquefaction side three FLNG projects (Prelude, Pacific Rubiales and PFLNG 1) are currently under construction.

Development of the small-scale business – whereby LNG leaves receiving terminals in liquid form via loadings into small ships and trucks - is taking off, particularly in marine Emission Control Areas for which more severe air emission limits should apply from 2015 onwards, bringing new players into the industry and reinforcing the necessity to find innovative, reliable and safe solutions. Attention to safety in this new domain of the LNG market continues to be of paramount importance.

Our association continues to offer a forum for exchange of information and experience among LNG executives and experts of member companies, with a view to benefit the LNG community at large. With six new members joining our ranks in 2013 (DONG Naturgas, GNL Italia, Hokkaido Gas, Inpex, Polskie LNG and PTT Thailand) GIIGNL is now composed of 74 members, representing almost all LNG importers and terminal owners/operators worldwide. Our overarching aim is the promotion of safe, reliable and cost effective operation of our industry.

**Domenico Dispenza**
President

# Contents

# Key figures 2013

**236.9** million tons imported or a **0.3%** increase vs.2012

**65** million tons traded on a spot or short-term basis or **27%** of total trade

**75%** of global LNG demand in Asia

**41%** of global LNG imports supplied from the Middle East

**37%** of global LNG imports supplied from the Pacific Basin

At year-end:

**104** LNG receiving terminals

**29** importing countries

**721** million tons p.a total capacity

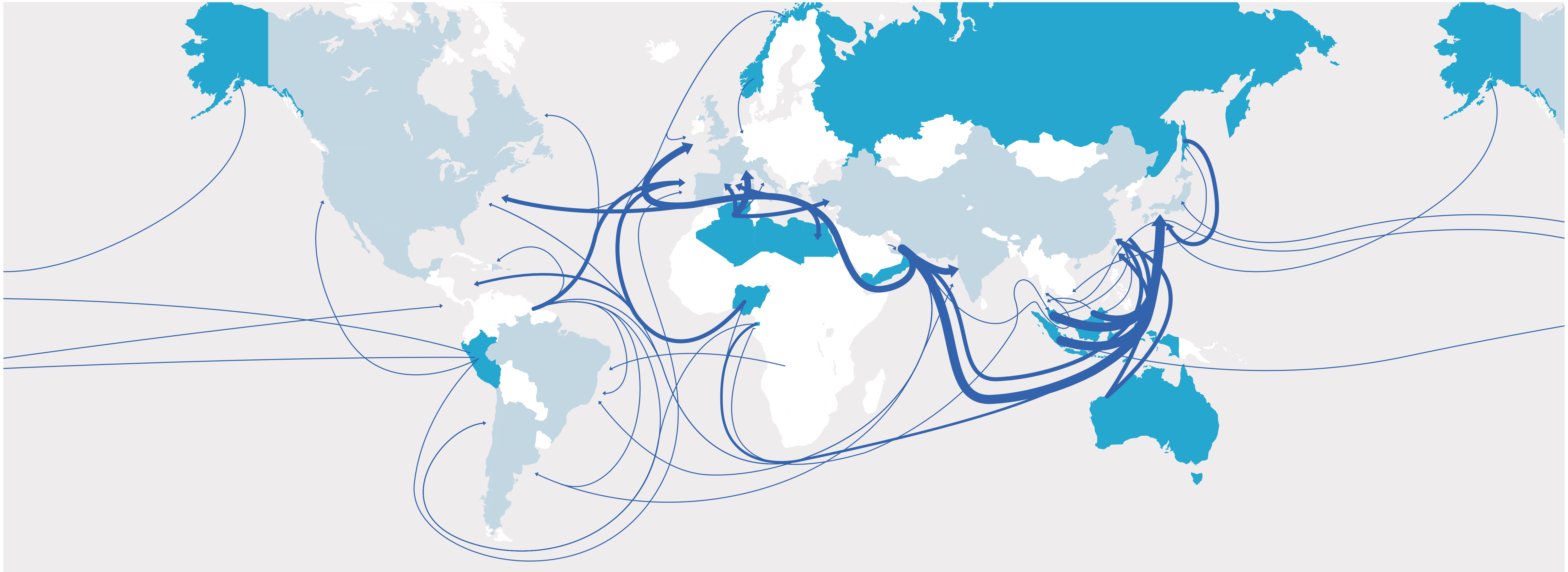
At year-end:

**86** liquefaction trains in operation

**17** exporting countries

**286** million tons p.a total capacity

# LNG contracts and trade



In 2013, global LNG imports remained stable compared to 2012. **Total imports reached 236.9 Mt**, a mere 0.3% increase over 2012. At the end of 2013, LNG represented about 10% of global gas demand.

Three countries (Israel, Malaysia and Singapore) joined the ranks of LNG importers and Angola started exporting its first cargoes in June. Little new supply was added during the year, as exports were curtailed by unplanned outages in several exporting countries. While European imports sharply declined, the market tightness was sustained by strong demand growth in China, South Korea and Latin America.

Two major inter-basin LNG flows stand out: from the Middle East to Asia-Pacific (74.9 Mt) and intra Asia-Pacific (84.5 Mt).

On the supply side, **incremental volumes from the Middle East and from Asia-Pacific were offset by decreases in output from the Atlantic Basin.**

The Middle East and Asia-Pacific both stepped up their exports by respectively 3.4% and 3.0%, following production increases in Yemen, Malaysia and Australia. On the contrary, due to force majeures in Nigeria, feedstock issues in Egypt and technical issues in Norway, overall exports from the Atlantic Basin decreased by 9.2%.

The Middle East remains the biggest exporting region with a 41.5% market share (98.3 Mt), followed by Asia-Pacific with 37.1% (87.9 Mt). In 2013, Qatar represented one-third of global gas supplies (33%), followed by Malaysia (11%) and Australia (10%).

On the demand side, North East Asia (Japan, South Korea and Taiwan) continues to be the largest market, with a combined 60% market share. While Japan's LNG consumption remained flat in volume, nuclear outages in South Korea contributed to boost the country's demand (+9.8%).

Gas demand growth in China drove the country's LNG consumption up by 4 Mt (+27%). On the contrary, due to a weaker rupee and to a greater amount of hydro generation, Indian LNG imports decreased by 1.7% to 13.1 Mt.

Due to the return of coal-fired power generation and to sluggish economic conditions, European LNG imports decreased by 13.5 Mt (-28.5%) and reached 33.9 Mt, below 2005 levels.

In the Americas, incremental volumes imported into Argentina (+1.4 Mt), Brazil (+1.5 Mt) and Mexico (+2.2 Mt) offset decreases in the USA and in Canada and contributed to increase the region's imports by 17.1%. Argentina's LNG demand was mainly driven by declining domestic production, while gas consumption growth in Brazil and Mexico was mostly driven by rising demand for power generation.

**At the end of 2013, Asia made up 75.1% of global gas demand,** followed by Europe (14.3%), and the Americas (9.3%) and the Middle East (1.3%).

With 65 Mt, the share of spot and short-term trades (trades under contract with a duration of four years or less) increased from 25% to 27.4% of total trade. Brunei was partly responsible for the additional spot and short-term volumes, as long-term contracts supposed to expire in 2013 were not extended to their full historical level. China, Malaysia, but also Argentina and Brazil imported most of the additional spot volumes available at the global level.

As a result of low demand in Europe and of higher prices in Asia and Latin America, LNG volumes re-exported from European countries continued to grow, reaching 4 Mt (approximately 80 cargoes) at the end of 2013. South America confirmed its appetite for spot volumes, as half of the reloaded cargoes were delivered to Argentina and Brazil, and only 20% to Asian countries. Asia performed its first re-export, with a cargo reloaded in Gwangyang and delivered to Japan.

At the end of the year, the world LNG trade involved 168 "flows" (country-to-country trades) over 423 sea transportation routes (port-to-port routes).

# Contracts concluded in 2013

| Origin | Export country/exporter | Buyer | Import country | Amount (mmtpa) | Duration (years) | Extra years | Start | Delivery format |
|---|---|---|---|---|---|---|---|---|
| Long & Medium Term Sales | AUSTRALIA/Chevron/Wheatstone | Tohoku Electric Power Co. | JAPAN | 0.9 | 20 | | 2017 | D.E.S. |
| | AUSTRALIA/Chevron/Wheatstone | Chubu Electric | JAPAN | 1.0 | 20 | | 2017 | F.O.B. |
| | BRUNEI/Brunei LNG Sendirian Berhad | The Tokyo Electric Power Co. | JAPAN | 2.0 | 10 | | 2013 | D.E.S. |
| | BRUNEI/Brunei LNG Sendirian Berhad | Tokyo Gas | JAPAN | 1.0 | 10 | | 2013 | D.E.S. |
| | BRUNEI/Brunei LNG Sendirian Berhad | Osaka Gas | JAPAN | 0.4 | 10 | | 2013 | D.E.S. |
| | BRUNEI/Brunei LNG Sendirian Berhad | Shell Eastern Trading | | 0.8 | 10 | | April 2013 | F.O.B. |
| | INDONESIA/Tangguh PSC contractor parties | The Kansai Electric | JAPAN | Max 1.0 | 22 | | 2014 | D.E.S. |
| | MALAYSIA/Malaysia LNG | Shizuoka Gas | JAPAN | 0.3 | 10 | | 2016 | D.E.S. |
| | QATAR/Qatargas7 | E.ON Global Commodities | NETHERLANDS | 1.5 | 5 | | 2014 | D.E.S. |
| | QATAR/Qatargas7 | Centrica | UK (Dragon) | 1.1 | 5 | | 2014 | D.E.S. |
| | QATAR/Qatargas3 | Petronas LNG UK | UK (Isle of Grain) | 3.0 | 4.5 | | 2014 | D.E.S. |
| | Russia/Sakhalin Energy Investment Company Ltd. (SPA Amendment) | Saibu Gas Co., Ltd. | JAPAN | 0.1 | 14 | | 2014 | D.E.S. |
| | RUSSIA/Yamal | Gas Natural Aprovisionamientos | EUROPE | 2.5 | 20 | | | D.E.S. |
| | USA/Cheniere/Corpus Christi Trains 1-3 | Pertamina | INDONESIA | 0.8 | 20 | | 2018 | F.O.B. |
| | USA/Cheniere/Sabine Pass Train 5 | Centrica | UK | 1.8 | 20 | | | F.O.B. |
| | USA/Kogas/Sabine Pass volumes | Total | | 0.7 | 20 | | 2017 | F.O.B. |
| | BG Group Portfolio | China National Offshore Oil Corporation | CHINA | 5.0 | 20 | | 2015 | D.E.S. |
| | BG Group Portfolio | Gujarat State Petroleum Corporation | INDIA | 1.3 | 20 | | 2015 | D.E.S. |
| | Chubu Electric Portfolio | INPEX Corporation | JAPAN | 17 cargoes over 5 years | 5 | | 2013 | D.E.S. |
| | ENI Portfolio | Kogas and Chubu | SOUTH KOREA /JAPAN | 28 cargoes over 5 years | 5 | | 2013 | D.E.S. |
| | Gas Natural Fenosa Portfolio | Repsol | | 0.7 | 20 | | 2017 | D.E.S. |
| Short Term Contracts (< 4 yrs) | BP Portfolio | Enarsa | ARGENTINA | 1.2 | 2 | | 2014 | D.E.S. |
| | Gas Natural Fenosa Portfolio | KOGAS | SOUTH KOREA | 0.4 | 2 | | 2014 | D.E.S. |
| Heads of Agreement (H.O.As) | USA/Sumitomo corporation (Cove Point LNG) | The Kansai Electric | JAPAN | 0.8 | 20 | | late 2017 (target) | F.O.B. |
| | USA/Mitsubishi Corporation/ Cameron LNG | The Tokyo Electric Power Co. | JAPAN | 0.4+option | 20 | | 2017 | D.E.S. |
| | USA/Mitsui & CO., LTD./Cameron LNG | The Tokyo Electric Power Co. | JAPAN | 0.4+option | 20 | | 2017 | D.E.S. |
| | USA/Sumitomo corporation (Cove Point LNG) | Tokyo Gas | JAPAN | 1.4 | 20 | | 2017 | F.O.B. |
| | GDF SUEZ Portfolio | CPC Corporation | TAIWAN | 0.8 | 20 | | 2019 | D.E.S. |
| | MALAYSIA/Petronas | CPC Corporation | TAIWAN | 2.0 | 5 | | 2015 | D.E.S. |
| | EAST CANADA (Goldboro LNG/Pieridae Energy) | E.ON Global Commodities | E.ON Portfolio | 4.8 | 20 | | 2020 | F.O.B. |
| | COLOMBIA/Pacific Rubiales | Gazprom Marketing & Trading | GM&T Portfolio | 0.5 | 5 | | 2015 | F.O.B. |
| | ISRAEL/Tamar Partners | Gazprom Marketing & Trading | GM&T Portfolio | 3.0 | 20 | | | F.O.B. |

| Origin | Export country/exporter | Purchaser | Import country | Amount (mmtpa) | Duration (years) | Extra years | Start | Delivery format |
|---|---|---|---|---|---|---|---|---|
| Agreements on regasification (R)/liquefaction rights (L) | Petronet LNG Limited, Dahej (R) | GAIL(India) Limited | INDIA | 2.5 | 20 | | 2016-17 | Regasification agreement |
| | Petronet LNG Limited, Dahej (R) | GSPC | INDIA | 1.3 | 20 | | 2013 | Regasification agreement |
| | Petronet LNG Limited, Dahej (R) | GSPL | INDIA | 1.0 | 20 | | 2013 | Regasification agreement |
| | Petronet LNG Limited, Dahej (R) | BPCL | INDIA | 1.0 | 20 | | 2013 | Regasification agreement |
| | USA/Dominion Cove Point (L) | GAIL Global LNG LLC (USA) | INDIA | 2.3 | 20 | | 2017-18 | F.O.B. |
| | USA/Dominion Cove Point (L) | Sumitomo Corporation | | 2.3 | 20 | | 2017 | F.O.B. |
| | USA/Freeport LNG Train 2 (L) | BP | BP Portfolio | 4.4 | 20 | 10 | 2018 | F.O.B. |
| | USA/Freeport LNG Train 3 (L) | SK E&S LNG | SOUTH KOREA | 2.2 | 20 | 20 | 2019 | F.O.B. |
| | USA/Freeport LNG Train 3 (L) | Toshiba Corporation | JAPAN | 2.2 | 20 | 20 | 2019 | F.O.B. |
| | USA/Cameron LNG LLC (L) | Japan LNG Investment LLC (Mitsubishi Corp/NYK) | JAPAN | 4.0 | 20 | 10 | 2018 | F.O.B. |
| | USA/Cameron LNG LLC (L) | Mitsui & Company, Ltd. | JAPAN | 4.0 | 20 | 10 | 2018 | F.O.B. |
| | USA/Cameron LNG LLC (L) | GDF SUEZ | TBD | 4.0 | 20 | 10 | 2018 | F.O.B. |

# Re-export of cargoes

| Export country | Import country | Cargo count | Re-exported volumes (Mt) |
|---|---|---|---|
| BELGIUM | ARGENTINA | 13 | 1.10 |
| | SPAIN | 3 | |
| | SOUTH KOREA | 2 | |
| | BRAZIL | 1 | |
| | PORTUGAL | 1 | |
| FRANCE | SPAIN | 2 | 0.35 |
| | BELGIUM | 1 | |
| | BRAZIL | 1 | |
| | JAPAN | 1 | |
| | PORTUGAL | 1 | |
| | THAILAND | 1 | |
| | TURKEY | 1 | |
| NETHERLANDS | BRAZIL | 1 | 0.17 |
| | CHINA | 1 | |
| | ITALY | 1 | |
| | TURKEY | 1 | |
| PORTUGAL | ARGENTINA | 4 | 0.24 |
| | BRAZIL | 2 | |
| SPAIN | BRAZIL | 13 | 2.13 |
| | ARGENTINA | 6 | |
| | MEXICO | 5 | |
| | JAPAN | 4 | |
| | ISRAEL | 3 | |
| | ITALY | 3 | |
| | SOUTH KOREA | 2 | |
| | PORTUGAL | 2 | |
| | TAIWAN | 2 | |
| **Europe** | | **78** | **3.99** |

| Export country | Import country | Cargo count | Re-exported volumes (Mt) |
|---|---|---|---|
| BRAZIL | ARGENTINA | 1 | 0.06 |
| USA | MEXICO | 1 | 0.10 |
| | PORTUGAL | 1 | |
| **Americas** | | **3** | **0.16** |
| SOUTH KOREA | JAPAN | 1 | 0.06 |
| **Asia** | | **1** | **0.06** |
| **World** | | **82** | **4.21** |

# LNG Trade

**In 2013, the world LNG trade reached 523.15 $10^6$ m³ in liquid form or 236.9 $10^6$ Mt, as shown in the following table:**

## LNG IMPORTS

| | $10^6$ m³ liquid | $10^6$ t | $10^9$ m³ (n) gaseous | Share (%) | Var. 2012 / 2013 (%) |
|---|---|---|---|---|---|
| Belgium | 2.61 | 1.19 | 1.49 | 0.5 | -34.7% |
| France | 13.12 | 5.94 | 7.51 | 2.5 | -17.2% |
| Greece | 1.00 | 0.45 | 0.58 | 0.2 | -40.4% |
| Italy | 8.93 | 4.05 | 5.09 | 1.7 | -21.6% |
| Netherlands | 0.80 | 0.36 | 0.46 | 0.2 | -35.4% |
| Portugal | 3.32 | 1.49 | 1.90 | 0.6 | -1.6% |
| Spain | 20.37 | 9.13 | 11.69 | 3.9 | -36.9% |
| Turkey | 9.73 | 4.40 | 5.57 | 1.9 | -21.9% |
| U.K. | 15.27 | 6.91 | 8.72 | 2.9 | -33.4% |
| **Europe** | **75.16** | **33.93** | **43.00** | **14.3** | **-28.5%** |
| Argentina | 10.70 | 4.72 | 6.17 | 2.0 | 40.4% |
| Brazil | 9.39 | 4.15 | 5.41 | 1.8 | 53.7% |
| Canada | 1.69 | 0.76 | 0.97 | 0.3 | -42.0% |
| Chile | 6.05 | 2.61 | 3.52 | 1.1 | -5.5% |
| Dominican Rep | 1.94 | 0.84 | 1.13 | 0.4 | -9.0% |
| Mexico | 12.61 | 5.67 | 7.23 | 2.4 | 61.2% |
| Puerto Rico | 2.70 | 1.16 | 1.57 | 0.5 | 20.3% |
| USA | 4.36 | 1.90 | 2.53 | 0.8 | -38.7% |
| **Americas** | **49.44** | **21.81** | **28.52** | **9.2** | **17.1%** |
| China | 40.98 | 18.60 | 23.39 | 7.9 | 27.0% |
| India | 28.86 | 13.05 | 16.49 | 5.5 | -1.7% |
| Indonesia | 3.19 | 1.43 | 1.83 | 0.6 | 98.6% |
| Japan | 192.58 | 87.98 | 109.61 | 37.1 | -0.1% |
| Malaysia | 3.31 | 1.50 | 1.89 | 0.6 | N/A |
| Singapore | 2.07 | 0.91 | 1.20 | 0.4 | N/A |
| South Korea | 89.32 | 40.39 | 51.03 | 17.0 | 9.8% |
| Taiwan | 28.06 | 12.72 | 16.02 | 5.4 | 0.4% |
| Thailand | 3.20 | 1.45 | 1.83 | 0.6 | 41.9% |
| **Asia** | **391.59** | **178.04** | **223.28** | **75.1** | **6.5%** |
| Dubai | 2.56 | 1.15 | 1.46 | 0.5 | 10.0% |
| Israel | 0.91 | 0.40 | 0.52 | 0.2 | N/A |
| Kuwait | 3.49 | 1.59 | 1.99 | 0.7 | -20.4% |
| **Middle East** | **6.97** | **3.14** | **3.98** | **1.3** | **3.4%** |
| ***Total*** | ***523.15*** | ***236.91*** | ***298.79*** | ***100.0*** | ***0.3%*** |

## SOURCE OF IMPORTS

| | $10^6$ m³ liquid | $10^6$ t | $10^9$ m³ (n) gaseous | Share (%) | Var. 2012 / 2013 (%) |
|---|---|---|---|---|---|
| Algeria | 23.88 | 10.81 | 13.68 | 4.6 | -3.5% |
| Angola | 0.73 | 0.33 | 0.42 | 0.1 | N/A |
| Egypt | 6.15 | 2.66 | 3.57 | 1.1 | -43.8% |
| Equatorial Guinea | 8.57 | 3.77 | 4.96 | 1.6 | 4.2% |
| Nigeria | 36.46 | 16.47 | 20.82 | 7.0 | -15.9% |
| Norway | 6.81 | 3.05 | 3.91 | 1.3 | -7.8% |
| Trinidad & Tobago | 31.72 | 13.67 | 18.45 | 5.8 | 1.5% |
| **Atlantic Basin** | **114.32** | **50.77** | **65.80** | **21.4** | **-9.2%** |
| Abu Dhabi | 10.89 | 5.08 | 6.16 | 2.1 | -10.2% |
| Oman | 18.27 | 8.35 | 10.37 | 3.5 | 2.5% |
| Qatar | 172.08 | 78.02 | 98.21 | 32.9 | 2.1% |
| Yemen | 15.43 | 6.82 | 8.90 | 2.9 | 39.4% |
| **Middle East** | **216.66** | **98.28** | **123.64** | **41.5** | **3.4%** |
| Australia | 48.29 | 22.41 | 27.29 | 9.5 | 7.3% |
| Brunei | 15.17 | 7.01 | 8.56 | 3.0 | 2.8% |
| Indonesia | 41.02 | 18.36 | 23.49 | 7.8 | -3.2% |
| Malaysia | 54.53 | 25.14 | 31.04 | 10.6 | 6.0% |
| Peru | 9.43 | 4.25 | 5.41 | 1.8 | 10.1% |
| Russia | 23.73 | 10.69 | 13.55 | 4.5 | -1.6% |
| **Pacific Basin** | **192.16** | **87.86** | **109.34** | **37.1** | **3.0%** |
| ***Total*** | ***523.15*** | ***236.91*** | ***298.79*** | ***100.0*** | ***0.3%*** |

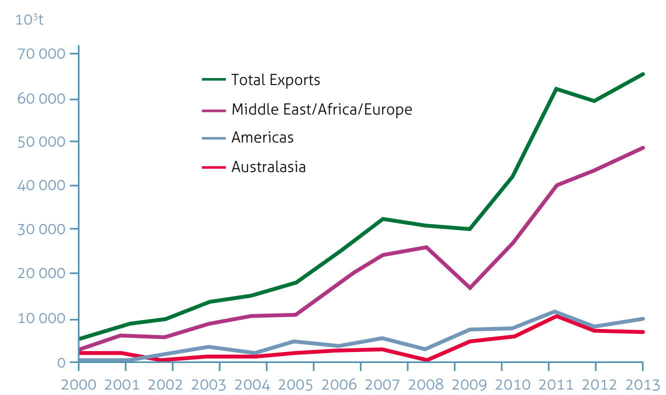
## QUANTITIES (IN $10^6$ T) RECEIVED IN 2013 BY THE IMPORTING COUNTRIES FROM THE EXPORTING COUNTRIES

| | Algeria | Angola | Egypt | Equ. Guin. | Nigeria | Norway | Peru | Trinidad & Tobago | Abu Dhabi | Oman | Qatar | Yemen | Australia | Brunei | Indonesia | Malaysia | Russia | Re-exports received | Re-exports loaded | ***Net imports*** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Belgium | - | - | - | - | - | 0.01 | - | - | - | - | 2.28 | - | - | - | - | - | - | 0.00 | (-1.10) | 1.19 |
| France | 3.86 | - | - | - | 0.88 | 0.19 | - | - | - | - | 1.29 | 0.07 | - | - | - | - | - | - | (-0.35) | 5.94 |
| Greece | 0.45 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0.45 |
| Italy | 0.03 | - | - | - | - | - | - | - | - | - | 3.82 | - | - | - | - | - | - | 0.19 | - | 4.05 |
| Netherlands | - | - | - | - | - | 0.22 | - | - | - | - | 0.31 | - | - | - | - | - | - | - | (-0.17) | 0.36 |
| Portugal | 0.07 | - | 0.06 | - | 0.96 | 0.18 | - | 0.06 | - | - | 0.24 | - | - | - | - | - | - | 0.16 | (-0.24) | 1.49 |
| Spain | 2.32 | - | 0.03 | - | 2.20 | 0.91 | 1.19 | 1.66 | - | 0.06 | 2.63 | - | - | - | - | - | - | 0.25 | (-2.13) | 9.13 |
| Turkey | 2.82 | - | 0.12 | - | 0.89 | 0.12 | - | - | - | - | 0.28 | 0.07 | - | - | - | - | - | 0.10 | - | 4.40 |
| The U.K. | 0.18 | - | - | - | - | 0.19 | - | 0.17 | - | - | 6.37 | - | - | - | - | - | - | - | - | 6.91 |
| **Europe** | **9.73** | **-** | **0.21** | **-** | **4.94** | **1.83** | **1.19** | **1.89** | **-** | **0.06** | **17.23** | **0.14** | **-** | **-** | **-** | **-** | **-** | **0.70** | **(-3.99)** | **33.93** |
| Argentina | - | - | 0.11 | - | 0.41 | 0.06 | - | 2.19 | - | - | 0.65 | - | - | - | - | - | - | 1.29 | - | 4.72 |
| Brazil | 0.06 | 0.07 | - | - | 0.88 | 0.30 | - | 1.85 | - | - | 0.18 | - | - | - | - | - | - | 0.86 | (-0.06) | 4.15 |
| Canada | - | - | - | - | - | - | - | 0.17 | - | - | 0.59 | - | - | - | - | - | - | - | - | 0.76 |
| Chile | - | - | - | - | - | - | - | 2.39 | - | - | - | 0.22 | - | - | - | - | - | - | - | 2.61 |
| Domin Rep | - | - | - | - | - | - | - | 0.84 | - | - | - | - | - | - | - | - | - | - | - | 0.84 |
| Mexico | - | - | - | - | 1.14 | 0.25 | 1.84 | 0.29 | - | - | 1.17 | 0.39 | - | - | 0.25 | - | - | 0.34 | - | 5.67 |
| Puerto Rico | - | - | - | - | - | - | - | 1.16 | - | - | - | - | - | - | - | - | - | - | - | 1.16 |
| U.S.A. | - | - | - | - | 0.06 | 0.12 | - | 1.43 | - | - | 0.16 | 0.23 | - | - | - | - | - | - | (-0.10) | 1.90 |
| **Americas** | **0.06** | **0.07** | **0.11** | **-** | **2.48** | **0.73** | **1.84** | **10.32** | **-** | **-** | **2.75** | **0.85** | **-** | **-** | **0.25** | **-** | **-** | **2.50** | **(-0.16)** | **21.81** |
| China | 0.06 | 0.07 | 0.40 | 0.40 | 0.43 | - | - | 0.11 | - | - | 7.16 | 1.12 | 3.45 | - | 2.69 | 2.67 | - | 0.06 | - | 18.60 |
| India | 0.12 | - | 0.36 | - | 0.81 | 0.06 | - | - | - | - | 11.07 | 0.58 | - | 0.06 | - | - | - | - | - | 13.05 |
| Indonesia | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1.43 | - | - | - | - | 1.43 |
| Japan | 0.42 | 0.13 | 0.57 | 2.24 | 3.80 | 0.31 | 0.72 | 0.27 | 5.08 | 3.95 | 16.41 | 0.50 | 18.16 | 5.10 | 6.26 | 15.21 | 8.60 | 0.27 | - | 87.98 |
| Malaysia | 0.24 | - | 0.06 | - | 0.32 | 0.06 | - | - | - | - | 0.13 | 0.12 | - | 0.57 | - | - | - | - | - | 1.50 |
| Singapore | - | - | - | 0.58 | - | - | - | 0.22 | - | - | 0.11 | - | - | - | - | - | - | - | - | 0.91 |
| South Korea | 0.12 | 0.07 | 0.65 | 0.12 | 2.71 | 0.06 | 0.51 | 0.64 | - | 4.34 | 13.54 | 3.39 | 0.68 | 1.22 | 5.79 | 4.23 | 2.03 | 0.33 | (-0.06) | 40.39 |
| Taiwan | - | - | 0.18 | 0.38 | 0.51 | - | - | 0.06 | - | - | 6.27 | 0.06 | 0.06 | 0.06 | 1.93 | 3.03 | 0.06 | 0.12 | - | 12.72 |
| Thailand | - | - | - | 0.06 | 0.24 | - | - | - | - | - | 1.03 | 0.06 | - | - | - | - | - | 0.06 | - | 1.45 |
| **Asia** | **0.96** | **0.26** | **2.21** | **3.77** | **8.81** | **0.49** | **1.23** | **1.29** | **5.08** | **8.29** | **55.71** | **5.84** | **22.35** | **7.01** | **18.11** | **25.14** | **10.69** | **0.84** | **(-0.06)** | **178.04** |
| Dubai | 0.06 | - | 0.12 | - | - | - | - | - | - | - | 0.97 | - | - | - | - | - | - | - | - | 1.15 |
| Israel | - | - | - | - | 0.06 | - | - | 0.17 | - | - | - | - | - | - | - | - | - | 0.17 | - | 0.40 |
| Kuwait | - | - | - | - | 0.17 | - | - | - | - | - | 1.36 | - | 0.06 | - | - | - | - | - | - | 1.59 |
| **Middle East** | **0.06** | **-** | **0.12** | **-** | **0.23** | **-** | **-** | **0.17** | **-** | **-** | **2.33** | **-** | **0.06** | **-** | **-** | **-** | **-** | **0.17** | **-** | **3.14** |
| ***Exports*** | ***10.81*** | ***0.33*** | ***2.66*** | ***3.77*** | ***16.47*** | ***3.05*** | ***4.25*** | ***13.67*** | ***5.08*** | ***8.35*** | ***78.02*** | ***6.82*** | ***22.41*** | ***7.01*** | ***18.36*** | ***25.14*** | ***10.69*** | ***4.21*** | ***(-4.21)*** | ***236.91*** |

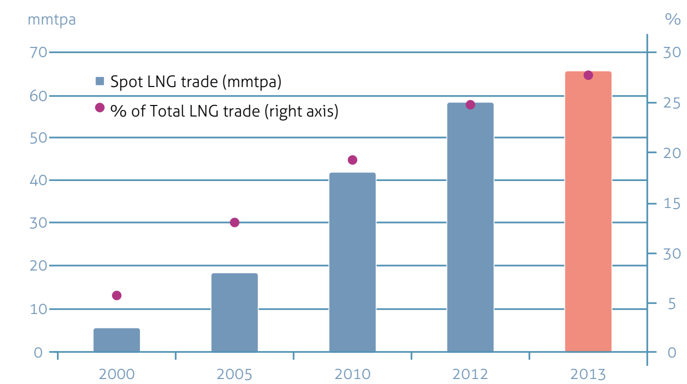
## SPOT & SHORT-TERM VOLUMES ($10^3$ T) RECEIVED IN 2013 BY THE IMPORTING COUNTRIES FROM THE EXPORTING COUNTRIES

| | Algeria | Angola | Egypt | Equ. Guin. | Nigeria | Norway | Peru | Trinidad & Tobago | Abu Dhabi | Oman | Qatar | Yemen | Australia | Brunei | Indonesia | Malaysia | Russia | Re-exports received | Re-exports loaded | ***Net Imports*** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Belgium | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | -1 104 | -1 102 |
| France | - | - | - | - | 74 | 188 | - | - | - | - | - | - | - | - | - | - | - | - | -350 | -87 |
| Italy | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 194 | - | 194 |
| Netherlands | - | - | - | - | - | 62 | - | - | - | - | 156 | - | - | - | - | - | - | - | -173 | 46 |
| Portugal | 66 | - | 62 | - | 61 | 182 | - | 57 | - | - | 244 | - | - | - | - | - | - | 160 | -241 | 590 |
| Spain | 137 | - | - | - | - | 351 | 1 185 | 502 | - | - | 525 | - | - | - | - | - | - | 247 | -2 125 | 823 |
| Turkey | - | - | 123 | - | - | 123 | - | - | - | - | 278 | 68 | - | - | - | - | - | 96 | - | 688 |
| U.K. | 180 | - | - | - | - | 80 | - | 119 | - | - | - | - | - | - | - | - | - | - | - | 378 |
| **Europe** | **383** | **-** | **185** | **-** | **135** | **988** | **1 185** | **678** | **-** | **-** | **1 202** | **68** | **-** | **-** | **-** | **-** | **-** | **700** | **-3 994** | **1 530** |
| Argentina | - | - | 115 | - | 412 | 60 | - | 2 190 | - | - | 654 | - | - | - | - | - | - | 1 290 | - | 4 720 |
| Brazil | 56 | 69 | - | - | 878 | 303 | - | 1 853 | - | - | 184 | - | - | - | - | - | - | 863 | -56 | 4 150 |
| Canada | - | - | - | - | - | - | - | - | - | - | 587 | - | - | - | - | - | - | - | - | 587 |
| Chile | - | - | - | - | - | - | - | 226 | - | - | - | - | - | - | - | - | - | - | - | 226 |
| Domin Rep | - | - | - | - | - | - | - | 836 | - | - | - | - | - | - | - | - | - | - | - | 836 |
| Mexico | - | - | - | - | 531 | 118 | - | 120 | - | - | 59 | - | - | - | - | - | - | 345 | - | 1 173 |
| Puerto Rico | - | - | - | - | - | - | - | 705 | - | - | - | - | - | - | - | - | - | - | - | 705 |
| U.S.A. | - | - | - | - | 56 | 120 | - | 175 | - | - | 158 | - | - | - | - | - | - | - | -102 | 407 |
| **Americas** | **56** | **69** | **115** | **-** | **1 877** | **602** | **-** | **6 105** | **-** | **-** | **1 642** | **-** | **-** | **-** | **-** | **-** | **-** | **2 497** | **-159** | **12 803** |
| China | 59 | 69 | 403 | 396 | 243 | - | - | 109 | - | - | 2 077 | 381 | - | - | 125 | - | - | 57 | - | 3 919 |
| India | 122 | - | 357 | - | 810 | 60 | - | - | - | - | 3 553 | 579 | - | 58 | - | - | - | - | - | 5 539 |
| Japan | 419 | 125 | 239 | 1 377 | 3 801 | 309 | 722 | 282 | 283 | 1 283 | 7 701 | 503 | 449 | 647 | 1 386 | 421 | 1 477 | 268 | - | 21 691 |
| Malaysia | 240 | - | 59 | - | 324 | 60 | - | - | - | - | 130 | 122 | - | 570 | - | - | - | - | - | 1 504 |
| Singapore | - | - | - | - | - | - | - | - | - | - | 115 | - | - | - | - | - | - | - | - | 115 |
| South Korea | 61 | 66 | 404 | 123 | 961 | 62 | 507 | 320 | - | 253 | 4 543 | 1 368 | 86 | 60 | 1 494 | 61 | 312 | 330 | -58 | 10 951 |
| Taiwan | - | - | 178 | 379 | 506 | - | - | 55 | - | - | 1 761 | 61 | 62 | 62 | 62 | - | 64 | 122 | - | 3 311 |
| Thailand | - | - | - | 59 | 236 | - | - | - | - | - | 1 025 | 64 | - | - | - | - | - | 61 | - | 1 445 |
| **Asia** | **900** | **260** | **1 641** | **2 335** | **6 880** | **491** | **1 229** | **766** | **283** | **1 536** | **20 903** | **3 076** | **597** | **1 396** | **3 067** | **482** | **1 852** | **838** | **-58** | **48 476** |
| Dubai | 63 | - | 120 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 183 |
| Israel | - | - | - | - | 58 | - | - | 169 | - | - | - | - | - | - | - | - | - | 175 | - | 403 |
| Kuwait | - | - | - | - | 173 | - | - | - | - | - | 1 356 | - | 56 | - | - | - | - | - | - | 1 585 |
| **Middle East** | **63** | **-** | **120** | **-** | **232** | **-** | **-** | **169** | **-** | **-** | **1 356** | **-** | **56** | **-** | **-** | **-** | **-** | **175** | **-** | **2 171** |
| ***Exports*** | ***1 403*** | ***329*** | ***2 061*** | ***2 335*** | ***9 124*** | ***2 080*** | ***2 414*** | ***7 718*** | ***283*** | ***1 536*** | ***25 104*** | ***3 144*** | ***652*** | ***1 396*** | ***3 067*** | ***482*** | ***1 852*** | ***4 210*** | ***-4 210*** | ***64 980*** |

*Spot and Short-Term LNG Trade development since 2000*

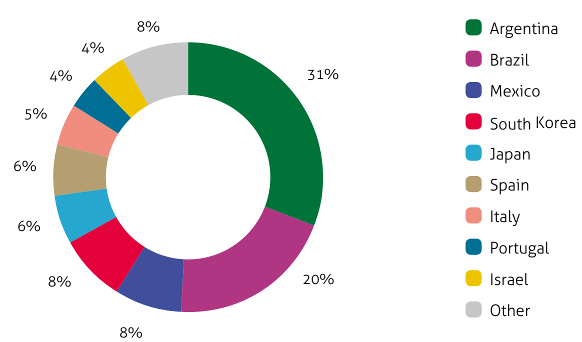



*Spot and Short-Term LNG Trade & Share of Total LNG Trade since 2000*

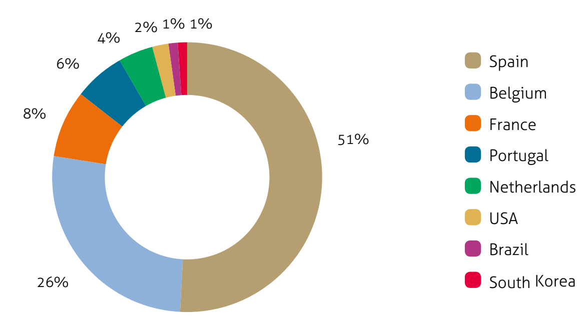



*Note: Short-term trade denotes trades under contracts of a duration of 4 years or less.*

*Re-exports received by receiving country in 2013 (4.2 Mt)*




*Re-exports loaded by reloading country in 2013 (4.2 Mt)*



# LNG Characteristics

## LNG CHARACTERISTICS

The average composition is chosen as being representative among compositions reported by the different receiving terminals.

| Origin | Nitrogen $N_2$ % | Methane C1 % | Ethane C2 % | Propane C3 % | C4+ % | TOTAL | LNG Density [1] kg/m³ | Gas Density [2] kg/m³(n) | Expansion ratio m³(n)/ m³ liq | Gas GCV [2] MJ/m³(n) | Wobbe Index [2] MJ/m³(n) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Australia - NWS | 0.04 | 87.33 | 8.33 | 3.33 | 0.97 | 100.0 | 467.35 | 0.83 | 562.46 | 45.32 | 56.53 |
| Australia - Darwin | 0.10 | 87.64 | 9.97 | 1.96 | 0.33 | 100.0 | 461.05 | 0.81 | 567.73 | 44.39 | 56.01 |
| Algeria - Skikda | 0.63 | 91.40 | 7.35 | 0.57 | 0.05 | 100.0 | 446.65 | 0.78 | 575.95 | 42.30 | 54.62 |
| Algeria - Bethioua | 0.64 | 89.55 | 8.20 | 1.30 | 0.31 | 100.0 | 454.50 | 0.80 | 571.70 | 43.22 | 55.12 |
| Algeria - Arzew | 0.71 | 88.93 | 8.42 | 1.59 | 0.37 | 100.0 | 457.10 | 0.80 | 570.37 | 43.48 | 55.23 |
| Brunei | 0.04 | 90.12 | 5.34 | 3.02 | 1.48 | 100.0 | 461.63 | 0.82 | 564.48 | 44.68 | 56.18 |
| Egypt - Idku | 0.02 | 95.31 | 3.58 | 0.74 | 0.34 | 100.0 | 437.38 | 0.76 | 578.47 | 41.76 | 54.61 |
| Egypt - Damietta | 0.02 | 97.25 | 2.49 | 0.12 | 0.12 | 100.0 | 429.35 | 0.74 | 582.24 | 40.87 | 54.12 |
| Equatorial Guinea | 0.00 | 93.41 | 6.52 | 0.07 | 0.00 | 100.0 | 439.64 | 0.76 | 578.85 | 41.95 | 54.73 |
| Indonesia - Arun | 0.08 | 91.86 | 5.66 | 1.60 | 0.79 | 100.0 | 450.96 | 0.79 | 571.49 | 43.29 | 55.42 |
| Indonesia - Badak | 0.01 | 90.14 | 5.46 | 2.98 | 1.40 | 100.0 | 461.07 | 0.82 | 564.89 | 44.63 | 56.17 |
| Indonesia - Tangguh | 0.13 | 96.91 | 2.37 | 0.44 | 0.15 | 100.0 | 431.22 | 0.74 | 581.47 | 41.00 | 54.14 |
| Libya | 0.59 | 82.57 | 12.62 | 3.56 | 0.65 | 100.0 | 478.72 | 0.86 | 558.08 | 46.24 | 56.77 |
| Malaysia | 0.14 | 91.69 | 4.64 | 2.60 | 0.93 | 100.0 | 454.19 | 0.80 | 569.15 | 43.67 | 55.59 |
| Nigeria | 0.03 | 91.70 | 5.52 | 2.17 | 0.58 | 100.0 | 451.66 | 0.79 | 571.14 | 43.41 | 55.50 |
| Norway | 0.46 | 92.03 | 5.75 | 1.31 | 0.45 | 100.0 | 448.39 | 0.78 | 573.75 | 42.69 | 54.91 |
| Oman | 0.20 | 90.68 | 5.75 | 2.12 | 1.24 | 100.0 | 457.27 | 0.81 | 567.76 | 43.99 | 55.73 |
| Peru | 0.57 | 89.07 | 10.26 | 0.10 | 0.01 | 100.0 | 451.80 | 0.79 | 574.30 | 42.90 | 55.00 |
| Qatar | 0.27 | 90.91 | 6.43 | 1.66 | 0.74 | 100.0 | 453.46 | 0.79 | 570.68 | 43.43 | 55.40 |
| Russia - Sakhalin | 0.07 | 92.53 | 4.47 | 1.97 | 0.95 | 100.0 | 450.67 | 0.79 | 571.05 | 43.30 | 55.43 |
| Trinidad | 0.01 | 96.78 | 2.78 | 0.37 | 0.06 | 100.0 | 431.03 | 0.74 | 581.77 | 41.05 | 54.23 |
| USA - Alaska | 0.17 | 99.71 | 0.09 | 0.03 | 0.01 | 100.0 | 421.39 | 0.72 | 585.75 | 39.91 | 53.51 |
| Yemen | 0.02 | 93.17 | 5.93 | 0.77 | 0.12 | 100.0 | 442.42 | 0.77 | 576.90 | 42.29 | 54.91 |

[1] Calculated according to ISO 6578 [T = -160ºC]. [2] Calculated according to ISO 6976 [0ºC / 0ºC, 1.01325 bar].

# LNG tankers

**The total LNG tanker fleet consisted of 393 vessels at the end of the year.**

It included 15 FSRUs/RVs* and 24 ships of less than 50 000 m³.

• 20 LNG carriers were delivered in 2013 (compared with 2 ships in 2012), including three small-scale vessels.

• One LNG tanker was converted into an FSRU and put into service in Italy:

- OLT Toscana (ex Golar Frost, 137 800 m³)

• 5 ships were scrapped during the year:

- Annabella
- Galeomma
- Marisa (ex Isabella)
- LNG Delta
- Norman Lady

(*) Floating Storage and Regasification Units/ Regasification Vessels

## LAID-UP SHIPS IN 2013

| Name | Capacity (m³) | Delivery date | Containment |
|---|---|---|---|
| Bachir Chiahni | 129 767 | 1979 | Membrane |
| Gandria | 125 820 | 1977 | Moss |
| Gimi | 126 277 | 1976 | Moss |
| Hilli | 126 227 | 1975 | Moss |
| Koto | 125 450 | 1984 | Moss |
| Tenaga Dua | 130 000 | 1981 | Membrane |
| Tenaga Empat | 130 000 | 1981 | Membrane |
| *Total* | *893 541* | | |

Total shipping capacity at the end of 2013 reached 56.3 $10^6$ m³. The operational shipping capacity (without laid-ups) amounted to 55.4 $10^6$ m³.

In all, **3998 loaded voyages were completed in 2013,** compared to 3982 in 2012:

**1 532** » to Japan (1 533 in 2012)
**616** » to South Korea (568 in 2012)
**260** » to China (207 in 2012)
**204** » to China Taipei (206 in 2012)
**195** » to India (205 in 2012)
**661** » to Europe (846 in 2012)
**224** » to Argentina, Brazil and Chile (180 in 2012)
**171** » to North America (173 in 2012)
**82** » to Indonesia, Malaysia, Singapore and Thailand
**53** » to Israel, Kuwait and Dubai

The average delivery volume remained stable, around 130 000 m³ per cargo. Short-term charter rates eased to USD100 000/day, compared with USD125 000/day in 2012.

At the end of the year, the Panama Canal expansion program was 72% complete. Completion date was planned for the end of 2015, and final tolls for transit through the canal were expected to be published by April 2014.

According to the Panama Canal Authority, once completed, the new locks will be able to accommodate at least 90% of the LNG fleet, compared to 7% today.

Since the first commercial LNG delivery in 1964, **over 75 000 cargoes** have been delivered without loss.

# LNG tankers (cont'd.)

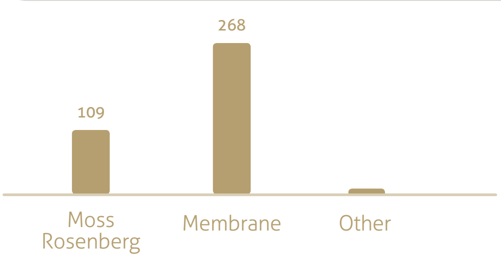
## SHIPS DELIVERED IN 2013

| Official Delivery Date | Ship name | Capacity (m³) | Shipowner | Shipbuilder | Containment System | IMO |
|---|---|---|---|---|---|---|
| July 2013 | Arctic Aurora | 155 000 | Dynagas | HHI | Membrane | 9645970 |
| October 2013 | Cool Voyager | 160 000 | Thenamaris | SHI | Membrane | 9636785 |
| May 2013 | Coral Anthelia | 6 500 | Anthony Veder | AVIC Dingheng SB | Membrane | 9625140 |
| January 2013 | Coral Energy | 15 600 | Anthony Veder | Neptun Werft | Membrane | 9617698 |
| March 2013 | GasLog Santiago | 155 000 | GasLog | SHI | Membrane | 9600530 |
| October 2013 | GasLog Seattle | 155 000 | GasLog | SHI | Membrane | 9634086 |
| January 2013 | GasLog Shanghai | 155 000 | GasLog | SHI | Membrane | 9600528 |
| July 2013 | GasLog Skagen | 155 000 | GasLog | SHI | Membrane | 9626285 |
| May 2013 | GasLog Sydney | 155 000 | GasLog | SHI | Membrane | 9626273 |
| September 2013 | Golar Celsius | 160 000 | Golar LNG | SHI | Membrane | 9626027 |
| August 2013 | Golar Seal | 160 000 | Golar LNG | SHI | Membrane | 9624914 |
| October 2013 | Grace Dahlia | 177 000 | Tokyo Gas | Kawasaki | Moss | 9540716 |
| October 2013 | Kakuyu Maru | 2 500 | Tsurumi Sunmarine Co. | Kawasaki | Cylinders | 9675200 |
| October 2013 | Lena River | 155 000 | Dynagas | HHI | Membrane | 9629598 |
| July 2013 | OLT Toscana | 137 800 | OLT Offshore LNG Toscana | HHI | Moss | 9253284 |
| August 2013 | Wilforce | 156 000 | Teekay LNG | Daewoo | Membrane | 9627954 |
| November 2013 | Wilpride | 155 900 | Awilco | Daewoo | Membrane | 9627966 |
| October 2013 | Woodside Goode | 159 800 | Maran Gas Maritime | Hyundai Samho | Membrane | 9633161 |
| July 2013 | Woodside Rogers | 159 800 | Maran Gas Maritime | DSME | Membrane | 9627485 |
| July 2013 | Yenisei River | 155 000 | Dynagas | HHI | Membrane | 9629586 |

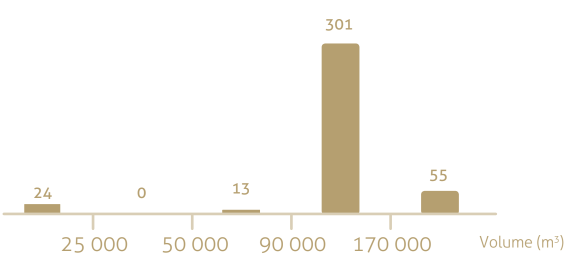
- In 2013, 45 new orders (37 membrane/8 Moss) were placed, including one FSRU.
- At the end of 2013, the order book comprised 113 vessels, 98 of which above 50 000 m³. 32 of these vessels were expected for delivery in 2014.
- The order book included 10 FSRUs/RVs, 6 of which were planned for delivery in 2014.
- 47 LNG fuelled-ships (other than LNG carriers) were in operation at the end of the year.

**The vessels can be classified as follows (at the end of 2013):**

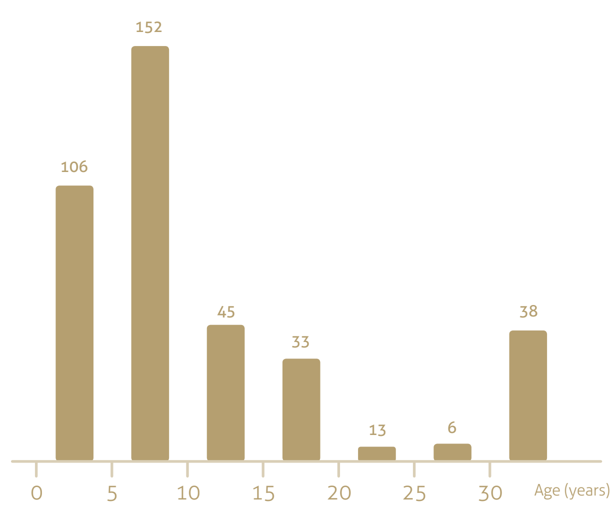
*According to containment system*




*According to cargo capacity*




*According to the delivery date or the age of the ships*




# Fleet list

| Delivery date | Tanker name | Technique | Capacity (m³) |
|---|---|---|---|
| 1969 | SCF Arctic (ex Methane Arctic) | Membrane | 71 500 |
| | SCF Polar (ex Methane Polar) | Membrane | 71 500 |
| 1972 | Bebatik | Membrane | 75 060 |
| 1975 | Belanak | Membrane | 75 000 |
| | Bilis | Membrane | 77 731 |
| | Bubuk | Membrane | 77 670 |
| | Hilli | Moss | 126 227 |
| 1976 | Gimi | Moss | 126 277 |
| 1977 | Gandria | Moss | 125 820 |
| | Golar Freeze | Membrane | 135 200 |
| | Larbi Ben M'Hidi | Membrane | 129 767 |
| | LNG Aquarius | Moss | 126 300 |
| | LNG Aries | Moss | 126 300 |
| | LNG Lagos (ex Gastor) | Membrane | 122 000 |
| | LNG Port Harcourt | Membrane | 122 000 |
| | Mostefa Ben Boulaïd | Membrane | 125 260 |
| | West Java (ex Khannur) | Moss | 125 017 |
| 1978 | LNG Capricorn | Moss | 126 300 |
| | LNG Gemini | Moss | 126 300 |
| | LNG Leo | Moss | 126 400 |
| | Methania | Membrane | 131 235 |
| 1979 | Bachir Chihani | Membrane | 129 767 |
| | LNG Libra | Moss | 126 400 |
| | LNG Taurus | Moss | 126 300 |
| | LNG Virgo | Moss | 126 400 |
| | Matthew (ex Gamma) | Membrane | 126 540 |
| 1980 | LNG Abuja (ex Louisiana) | Moss | 126 530 |
| | LNG Edo (ex Lake Charles) | Moss | 126 530 |
| | Mourad Didouche | Membrane | 126 130 |
| 1981 | Golar Spirit | Membrane | 128 600 |
| | Ramdane Abane | Membrane | 126 130 |
| | Tenaga Dua | Membrane | 130 000 |
| | Tenaga Empat | Membrane | 130 000 |
| | Tenaga Lima | Membrane | 130 000 |
| | Tenaga Tiga | Membrane | 130 000 |
| 1982 | Tenaga Satu | Membrane | 130 000 |
| 1983 | Banshu Maru | Moss | 127 000 |
| | Echigo Maru | Moss | 125 568 |
| | Wilpower (ex Bishu Maru) | Moss | 125 542 |
| 1984 | Koto (ex Kotowaka Maru) | Moss | 125 454 |
| | LNG Bonny | Membrane | 135 293 |
| | LNG Finima | Membrane | 133 000 |
| | Senshu Maru | Moss | 125 835 |
| | Wilgas (ex Dewa Maru) | Moss | 125 877 |
| 1985 | Wakaba Maru | Moss | 125 877 |
| 1989 | LNG Swift (ex NW Swift) | Moss | 127 590 |
| | NW Sanderling | Moss | 127 525 |
| | NW Swallow | Moss | 127 708 |
| 1990 | Ekaputra | Moss | 136 400 |
| | NW Snipe | Moss | 127 747 |
| 1991 | NW Shearwater | Moss | 127 500 |
| 1992 | NW Seaeagle | Moss | 127 452 |
| 1993 | Aman Bintulu | Membrane | 18 928 |
| | Arctic Spirit (ex Arctic Sun) | Other | 89 880 |
| | LNG Flora | Moss | 127 705 |
| | NW Sandpiper | Moss | 127 500 |
| | Polar Spirit (ex Polar Eagle) | Other | 89 880 |
| 1994 | Al Khaznah | Moss | 135 496 |
| | Dwiputra | Moss | 127 386 |
| | Hyundai Utopia | Moss | 125 182 |
| | LNG Vesta | Moss | 127 547 |
| | NW Stormpetrel | Moss | 127 606 |
| | Puteri Delima | Membrane | 130 405 |
| | Puteri Intan | Membrane | 130 405 |
| | Shahamah | Moss | 135 496 |

| Delivery date | Tanker name | Technique | Capacity (m³) |
|---|---|---|---|
| 1994 | YK Sovereign | Moss | 127 125 |
| 1995 | Ghasha | Moss | 137 514 |
| | Hanjin Pyeong-Taek | Membrane | 130 600 |
| | Ish | Moss | 137 540 |
| | Puteri Nilam | Membrane | 130 405 |
| 1996 | Al Khor | Moss | 137 354 |
| | Al Zubarah | Moss | 137 573 |
| | Hyundai Greenpia | Moss | 125 000 |
| | Mraweh | Moss | 137 000 |
| | Mubaraz | Moss | 137 000 |
| | Puteri Zamrud | Membrane | 130 405 |
| | Surya Aki | Moss | 19 474 |
| 1997 | Al Hamra | Moss | 137 000 |
| | Al Rayyan | Moss | 135 358 |
| | Al Wajbah | Moss | 137 354 |
| | Aman Sendai | Membrane | 18 928 |
| | LNG Portovenere | Membrane | 65 000 |
| | Puteri Firus | Membrane | 130 405 |
| | Umm Al Ashtan | Moss | 137 000 |
| 1998 | Al Wakrah | Moss | 135 358 |
| | Aman Hakata | Membrane | 18 800 |
| | Broog | Moss | 135 466 |
| | Kayoh Maru | Other | 1 517 |
| | LNG Lerici | Membrane | 65 000 |
| | Zekreet | Moss | 135 420 |
| 1999 | Al Bidda | Moss | 135 279 |
| | Doha | Moss | 137 354 |
| | Hanjin Muscat | Membrane | 138 200 |
| | Hyundai Technopia | Moss | 135 000 |
| | SK Summit | Membrane | 138 000 |
| 2000 | Al Jasra | Moss | 137 100 |
| | Golar Mazo | Moss | 135 225 |
| | Hanjin Ras Laffan | Membrane | 138 214 |
| | Hanjin Sur | Membrane | 138 333 |
| | Hyundai Aquapia | Moss | 135 000 |
| | Hyundai Cosmopia | Moss | 135 000 |
| | Hyundai Oceanpia | Moss | 135 000 |
| | K Acacia | Membrane | 138 017 |
| | K Freesia | Membrane | 135 256 |
| | LNG Jamal | Moss | 135 333 |
| | SK Splendor | Membrane | 138 375 |
| | SK Stellar | Membrane | 138 375 |
| | SK Supreme | Membrane | 138 200 |
| | Surya Satsuma | Membrane | 23 096 |
| 2001 | Sohar LNG (ex Lakshimi) | Moss | 137 248 |
| 2002 | Abadi | Moss | 135 000 |
| | British Trader | Membrane | 138 000 |
| | Excalibur | Membrane | 138 000 |
| | Galea | Moss | 134 425 |
| | Gallina | Moss | 134 425 |
| | Hispania Spirit (ex Fernando Tapias) | Membrane | 140 500 |
| | LNG Rivers | Moss | 137 231 |
| | LNG Sokoto | Moss | 137 231 |
| | Puteri Delima Satu | Membrane | 137 100 |
| | Puteri Intan Satu | Membrane | 137 100 |
| 2003 | British Innovator | Membrane | 138 000 |
| | British Merchant | Membrane | 138 000 |
| | BW Suez Boston (ex Berge Boston) | Membrane | 138 059 |
| | BW Suez Everett (ex Berge Everett) | Membrane | 138 028 |
| | Castillo de Villalba | Membrane | 138 000 |
| | Catalunya Spirit (ex Inigo Tapias) | Membrane | 138 000 |
| | Energy Frontier | Moss | 147 599 |
| | Excel | Membrane | 138 106 |
| | Golar Arctic (ex Granatina) | Membrane | 140 648 |
| | LNG Bayelsa | Moss | 137 500 |
| | Methane Princess | Membrane | 138 000 |
| | Pacific Notus | Moss | 137 006 |
| | Puteri Nilam Satu | Membrane | 137 100 |
| | Shinju Maru 1 | Other | 2 513 |
| | SK Sunrise | Membrane | 138 306 |

# Fleet list (cont'd.)

| Delivery date | Tanker name | Technique | Capacity (m$^3$) |
|---|---|---|---|
| 2004 | Berge Arzew | Membrane | 138 088 |
| | Bilbao Knutsen | Membrane | 138 000 |
| | Cadiz Knutsen | Membrane | 138 826 |
| | Disha | Membrane | 136 026 |
| | Dukhan | Moss | 137 661 |
| | Fuji LNG (ex Muscat LNG) | Moss | 149 172 |
| | Fuwairit | Membrane | 138 000 |
| | Galicia Spirit | Membrane | 140 624 |
| | Gemmata | Moss | 138 104 |
| | Golar Winter | Membrane | 138 000 |
| | Lala Fatma N'Soumer | Moss | 147 845 |
| | LNG Akwa Ibom | Moss | 141 038 |
| | LNG River Orashi | Membrane | 145 914 |
| | Madrid Spirit | Membrane | 145 000 |
| | Maersk Ras Laffan | Membrane | 138 270 |
| | Methane Kari Elin | Membrane | 138 209 |
| | NW Swan | Membrane | 138 000 |
| | Pioneer Knutsen | Other | 1 100 |
| | Puteri Firus Satu | Membrane | 137 100 |
| | Puteri Zamrud Satu | Membrane | 137 100 |
| | Raahi | Membrane | 136 026 |
| 2005 | Al Deebel | Membrane | 145 130 |
| | Al Thakhira | Membrane | 145 130 |
| | Energy Advance | Moss | 147 624 |
| | Excellence | Membrane | 138 120 |
| | Excelsior | Membrane | 138 087 |
| | Golar Grand (ex Grandis) | Membrane | 145 700 |
| | Gracilis (ex Golar Viking) | Membrane | 138 105 |
| | LNG Adamawa | Moss | 142 656 |
| | LNG Cross River | Moss | 141 000 |
| | LNG Enugu | Membrane | 145 914 |
| | LNG Oyo | Membrane | 145 842 |
| | LNG Pioneer | Membrane | 138 000 |
| | Lusail | Membrane | 145 000 |
| | Nizwa LNG | Moss | 147 684 |
| | North Pioneer | Moss | 2 512 |
| | Puteri Mutiara Satu | Membrane | 137 100 |
| | Rasgas Asclepius (ex Maran Gas Asclepius) | Membrane | 145 822 |
| | Salalah LNG | Membrane | 145 951 |
| | Seri Alam | Membrane | 145 572 |
| | Umm Bab | Membrane | 145 000 |
| 2006 | Al Marrouna | Membrane | 149 539 |
| | Arctic Discoverer | Moss | 142 612 |
| | Arctic Lady | Moss | 147 208 |
| | Arctic Princess | Moss | 147 835 |
| | Arctic Voyager | Moss | 140 000 |
| | Energy Progress | Moss | 147 558 |
| | Excelerate | Membrane | 138 000 |
| | GDF SUEZ Global Energy (ex Gaz de France Energy) | Membrane | 74 130 |
| | Golar Maria (ex Granosa) | Membrane | 145 700 |
| | Iberica Knutsen | Membrane | 148 000 |
| | Ibra LNG | Membrane | 147 100 |
| | Ibri LNG | Moss | 145 173 |
| | LNG Benue | Membrane | 145 842 |
| | LNG Dream | Moss | 145 000 |
| | LNG Lokoja | Membrane | 149 600 |
| | LNG River Niger | Moss | 141 000 |
| | Maersk Qatar | Membrane | 145 130 |
| | Methane Jane Elizabeth | Membrane | 145 000 |
| | Methane Lydon Volney | Membrane | 145 000 |
| | Methane Rita Andrea | Membrane | 145 000 |
| | Pacific Eurus | Moss | 135 000 |
| | Provalys | Membrane | 154 472 |
| | Seri Amanah | Membrane | 145 000 |
| | Seri Anggun | Membrane | 145 731 |
| | Seri Angkasa | Membrane | 145 000 |
| | Simaisma | Membrane | 145 700 |
| | Stena BlueSky (ex Bluesky) | Membrane | 145 819 |

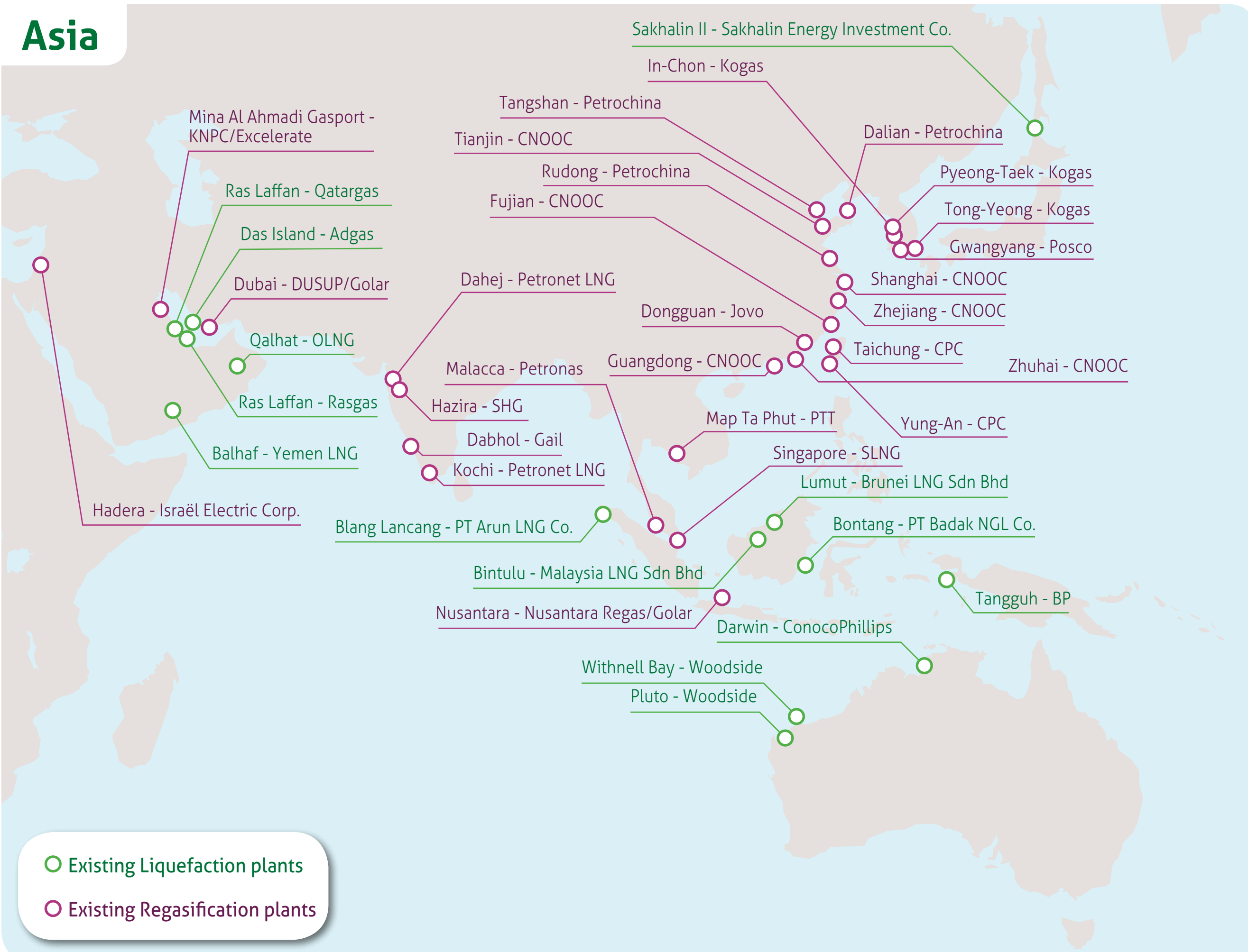
| Delivery date | Tanker name | Technique | Capacity (m$^3$) |
|---|---|---|---|
| 2007 | Al Areesh | Membrane | 148 786 |
| | Al Daayen | Membrane | 148 853 |
| | Al Gattara | Membrane | 216 224 |
| | Al Jassasiya | Membrane | 145 700 |
| | Al Ruwais | Membrane | 210 100 |
| | Al Safliya | Membrane | 210 100 |
| | British Emerald | Membrane | 154 983 |
| | Cheikh El Mokrani | Membrane | 74 365 |
| | Clean Energy | Membrane | 149 700 |
| | Clean Power | Membrane | 149 700 |
| | Ejnan | Membrane | 145 000 |
| | Gaselys | Membrane | 154 472 |
| | Grace Acacia | Membrane | 149 700 |
| | Grace Barleria | Membrane | 149 700 |
| | Grand Elena | Moss | 147 200 |
| | LNG Borno | Membrane | 149 600 |
| | LNG Kano | Membrane | 149 600 |
| | LNG Ogun | Membrane | 149 600 |
| | LNG Ondo | Membrane | 148 300 |
| | Maran Gas Coronis | Membrane | 145 700 |
| | Methane Alison Victoria | Membrane | 145 127 |
| | Methane Heather Sally | Membrane | 145 127 |
| | Methane Nile Eagle | Membrane | 145 144 |
| | Methane Shirley Elisabeth | Membrane | 145 127 |
| | Neo Energy | Membrane | 149 700 |
| | Neva River (ex. Celestine River) | Moss | 145 000 |
| | Seri Ayu | Membrane | 145 894 |
| | Seri Bakti | Membrane | 152 300 |
| | Seri Begawan | Membrane | 152 300 |
| | Sestao Knutsen | Membrane | 138 114 |
| | Sun Arrows | Moss | 19 100 |
| | Tembek | Membrane | 216 000 |
| 2008 | Al Aamriya | Membrane | 210 168 |
| | Al Ghariya | Membrane | 210 100 |
| | Al Gharrafa | Membrane | 216 224 |
| | Al Ghuwairiya | Membrane | 263 249 |
| | Al Hamla | Membrane | 216 000 |
| | Al Huwaila | Membrane | 217 000 |
| | Al Kharsaah | Membrane | 217 000 |
| | Al Khuwair | Membrane | 217 000 |
| | Al Oraiq | Membrane | 210 100 |
| | Al Sahla | Membrane | 216 200 |
| | Al Shamal | Membrane | 217 000 |
| | Al Thumama | Membrane | 216 200 |
| | Al Utouriya | Membrane | 215 000 |
| | Alto Acrux | Moss | 147 798 |
| | Arwa Spirit (ex Maersk Arwa) | Membrane | 165 500 |
| | British Diamond | Membrane | 155 000 |
| | British Ruby | Membrane | 155 000 |
| | British Sapphire | Membrane | 155 000 |
| | Bu Samra | Membrane | 267 335 |
| | Cheikh Bouamara | Membrane | 75 558 |
| | Clean Force | Membrane | 149 700 |
| | Dapeng Moon | Membrane | 147 210 |
| | Dapeng Sun | Membrane | 147 000 |
| | Duhail | Membrane | 210 100 |
| | Energy Navigator | Moss | 147 558 |
| | Explorer | Membrane | 150 900 |
| | Fraiha | Membrane | 210 100 |
| | Grace Cosmos | Membrane | 149 700 |
| | Grand Aniva | Moss | 147 200 |
| | Grand Mereya | Moss | 145 964 |
| | Hyundai Ecopia | Membrane | 19 700 |
| | K Jasmine | Membrane | 145 877 |
| | K Mugungwha | Membrane | 151 812 |
| | LNG Barka | Moss | 155 982 |
| | LNG Ebisu (ex Ebisu) | Moss | 147 546 |
| | LNG Imo | Membrane | 148 300 |
| | Maersk Marib | Membrane | 165 500 |
| | Maersk Methane | Membrane | 165 500 |
| | Mozah | Membrane | 267 335 |
| | Murwab | Membrane | 210 100 |
| | Seri Balhaf | Membrane | 152 300 |

| Delivery date | Tanker name | Technique | Capacity (m$^3$) |
|---|---|---|---|
| 2008 | Seri Bijaksana | Membrane | 152 888 |
| | Shinju Maru 2 | Other | 2 536 |
| | STX Kolt | Membrane | 145 700 |
| | Tangguh Batur | Membrane | 145 700 |
| | Tangguh Foja | Membrane | 155 641 |
| | Tangguh Hiri | Membrane | 155 000 |
| | Tangguh Jaya | Membrane | 155 641 |
| | Tangguh Towuti | Membrane | 145 700 |
| | Trinity Arrow | Membrane | 154 982 |
| | Umm Al Amad | Membrane | 210 100 |
| | Umm Slal | Membrane | 267 335 |
| 2009 | Abdelkader | Membrane | 155 000 |
| | Al Dafna | Membrane | 267 335 |
| | Al Ghashamiya | Membrane | 217 000 |
| | Al Kharaana | Membrane | 210 100 |
| | Al Kharaitiyat | Membrane | 216 200 |
| | Al Khattiya | Membrane | 210 100 |
| | Al Mafyar | Membrane | 267 335 |
| | Al Mayeda | Membrane | 267 335 |
| | Al Nuaman | Membrane | 210 100 |
| | Al Rekayyat | Membrane | 216 200 |
| | Al Sadd | Membrane | 210 100 |
| | Al Samriya | Membrane | 261 700 |
| | Al Sheehaniya | Membrane | 210 166 |
| | Aseem | Membrane | 155 000 |
| | Ben Badis | Membrane | 173 010 |
| | BW GDF SUEZ Brussels | Membrane | 162 400 |
| | BW GDF SUEZ Paris | Membrane | 162 400 |
| | Coral Methane | Other | 7 500 |
| | Cygnus Passage | Moss | 145 400 |
| | Dapeng Star | Membrane | 147 210 |
| | Energy Confidence | Moss | 153 000 |
| | Express | Membrane | 150 900 |
| | Exquisite | Membrane | 151 035 |
| | GDF SUEZ Neptune | Membrane | 145 000 |
| | Kakurei Maru | Other | 2 536 |
| | Lijmiliya | Membrane | 261 700 |
| | LNG Jupiter | Moss | 153 659 |
| | Maersk Magellan | Membrane | 165 500 |
| | Mekaines | Membrane | 267 335 |
| | Mesaimeer | Membrane | 216 200 |
| | Min Lu | Membrane | 147 210 |
| | Min Rong | Membrane | 147 000 |
| | Onaiza | Membrane | 210 100 |
| | Pacific Enlighten | Moss | 145 000 |
| | Seri Balqis | Membrane | 157 611 |
| | Shagra | Membrane | 267 335 |
| | Taitar n°1 | Moss | 147 362 |
| | Taitar n°2 | Moss | 147 500 |
| | Tangguh Palung | Membrane | 155 642 |
| | Tangguh Sago | Membrane | 154 971 |
| | Trinity Glory | Membrane | 154 999 |
| | Woodside Donaldson | Membrane | 165 936 |
| 2010 | Aamira | Membrane | 267 335 |
| | Abdelkader | Membrane | 155 000 |
| | Al Bahiya | Membrane | 210 100 |
| | Barcelona Knutsen | Membrane | 173 400 |
| | Castillo de Santisteban | Membrane | 173 673 |
| | Exemplar | Membrane | 151 072 |
| | Expedient | Membrane | 151 035 |
| | GasLog Savannah | Membrane | 155 000 |
| | GasLog Singapore | Membrane | 155 000 |
| | GDF SUEZ Cape Ann | Membrane | 145 000 |
| | GDF SUEZ Point Fortin | Membrane | 154 914 |
| | Meridian Spirit (ex Maersk Meridian) | Membrane | 165 772 |
| | Methane Becki Anne | Membrane | 170 678 |
| | Methane Julia Louise | Membrane | 170 000 |
| | Methane Mickie Harper | Membrane | 170 000 |
| | Methane Patricia Camila | Membrane | 170 000 |
| | Norgas Creation | Other | 10 030 |
| | Norgas Innovation | Other | 10 030 |

| Delivery date | Tanker name | Technique | Capacity (m$^3$) |
|---|---|---|---|
| 2010 | Rasheeda | Membrane | 267 335 |
| | Ribera del Duero Knutsen | Membrane | 173 400 |
| | Sevilla Knutsen | Membrane | 173 400 |
| | STX Frontier | Membrane | 153 000 |
| | Taitar N°3 | Moss | 147 366 |
| | Taitar N°4 | Moss | 147 546 |
| | Valencia Knutsen | Membrane | 173 400 |
| | Zarga | Membrane | 267 335 |
| 2011 | Akebono Maru | Other | 3 556 |
| | Amali | Membrane | 148 000 |
| | Arkat | Membrane | 147 228 |
| | Bahrain Vision | Other | 12 022 |
| | Energy Horizon | Moss | 177 441 |
| | Lobito | Membrane | 161 337 |
| | Malanje | Membrane | 160 400 |
| | Norgas Conception | Other | 10 030 |
| | Norgas Invention | Other | 10 030 |
| | Norgas Unikum | Other | 12 000 |
| | Sonangol Benguela | Membrane | 160 500 |
| | Sonangol Etosha | Membrane | 160 786 |
| | Sonangol Sambizanga | Membrane | 160 785 |
| | Soyo | Membrane | 161 337 |
| | Stena ClearSky | Membrane | 173 593 |
| | Stena CrystalSky | Membrane | 173 611 |
| 2012 | Cubal | Membrane | 160 400 |
| | Shen Hai | Membrane | 147 200 |
| 2013 | Arctic Aurora | Membrane | 155 000 |
| | Cool Voyager | Membrane | 160 000 |
| | Coral Anthelia (Small-Scale) | Membrane | 6 500 |
| | Coral Energy (Small-Scale) | Membrane | 15 600 |
| | GasLog Santiago | Membrane | 155 000 |
| | GasLog Seattle | Membrane | 155 000 |
| | GasLog Shanghai | Membrane | 155 000 |
| | GasLog Skagen | Membrane | 155 000 |
| | GasLog Sydney | Membrane | 155 000 |
| | Golar Celsius | Membrane | 160 000 |
| | Golar Seal | Membrane | 160 000 |
| | Grace Dahlia | Moss | 177 000 |
| | Kakuyu Maru | Other | 2 500 |
| | Lena River | Membrane | 155 000 |
| | OLT Toscana (FSRU) | Moss | 137 800 |
| | Wilforce | Membrane | 156 000 |
| | Wilpride | Membrane | 155 900 |
| | Woodside Goode | Membrane | 159 800 |
| | Woodside Rogers | Membrane | 159 800 |
| | Yenisei River | Membrane | 155 000 |

# Liquefaction plants

**There were 86 liquefaction trains in operation in 17 exporting countries at the end of 2013.**
**One new facility came into service: Angola LNG, with a capacity of 5.2 mmtpa. One plant was temporarily mothballed: Kenai LNG, in the United States.**
**Three FIDs were taken during the year, for a total output of 29.1 mmtpa: Malaysia LNG in March (train 9 for a 3.6 mmtpa expansion), Sabine Pass in May (trains 3 & 4 for a 2x4.5 mmtpa output) and Yamal LNG in December (3x5.5 mmtpa trains).**
**The aggregate nominal capacity of all liquefaction plants reached 286 mmtpa, to be compared with a worldwide LNG consumption of 236.9 mmtpa.**




### Algeria

• In Algeria, gas production remained curtailed, mainly due to feedgas shortages. The new 4.7 mmtpa LNG train at Skikda came on-stream at the end of January 2014. Besides, due to the limitation of feedgas, the Arzew project - awaited for Q2 2014- could be delayed. No new volumes have been contracted yet.

### Angola

• In Angola, the 5.2 mmtpa train went on stream in June and its first cargo was loaded on June 16, 2013. This is the first new LNG supply source to come online since 2010. However, due to production issues, only 5 cargoes were loaded in 2013.
Initially contracted for the US market, LNG is sold elsewhere under short term or spot agreements.

### Australia

• In Australia, following the start-up of Pluto (4.3 mmtpa) in 2012, no new project came on line in 2013. From the seven projects under construction for an additional 61.8 mmtpa, only one train (QCLNG - 4.25 mmtpa) is planned to be commissioned in 2014, the other ones becoming operational between 2015 and 2017.

*WEST COAST*

• The **Gorgon** project (three 5.2 mmtpa trains) led by Chevron is on schedule, with first LNG still expected for 2015. FID for a fourth train has been delayed, pending to a final cost review. As of end of 2013, main owners Chevron (47.73%), Exxon (25%) and Shell (25%) have contracted most of the volumes from the three trains on a long term basis to Asian buyers.

• **Wheatstone**, the other project led by Chevron (2 x 4.5 mmtpa) was 20% completed as of 2013, but could be delayed to 2017 due to the priority given to Gorgon.

• Led by Inpex (63.45%), Total (30%) and Japanese partners, the 8.4 mmtpa **Ichtys LNG** project has entered the construction phase and was 30% completed at the end of 2013. First deliveries are expected around the end of 2016. Inpex and Total will offtake 1.8 mmtpa and the remaining 6.6 mmtpa will be sold to Japanese buyers under long term contracts.

• **Prelude FLNG:** In May 2013, Shell laid the keel for Prelude FLNG, the world's first floating liquefied natural gas (FLNG) project. The 3.6 mmtpa project is still planned to be online by early 2017.

*EAST COAST*

• On the East coast, the **Queensland Curtis LNG (QCLNG)** project (2 trains of 4.25 mmtpa) led by BG is still planned to come on stream in 2014.
In November 2013, the building phase was 70% completed and the project entered the commissioning phase in December. On train 1, the joint venture with CNOOC has moved to 75% BG - 25% CNOOC on the upstream part, and 50-50 on the liquefaction plant. LNG sales have been agreed on a long term basis with CNOOC (85% of the quantities), and both companies agreed to invest in the construction of four LNG carriers in Chinese shipyards. On train 2 (BG 97.5%, Tokyo Gas 2.5%) BG sold 1.2 mmtpa of LNG to Tokyo Gas for 20 years starting in 2015, and will keep the remaining quantities for its portfolio.

• Also on Curtis Island, the 2 X 4.5 mmtpa **Australia Pacific LNG project (APLNG)** led by ConocoPhillips (37.5%), Origin Energy (37.5%) and Sinopec (25%) was 50% completed at end of 2013. LNG will be sold on a long term basis to Sinopec (7.6 mmtpa) and The Kansai Electric (1 mmtpa). Start-up of train 2 could be delayed to early 2016.

• Led by Santos (30%), Total (27.5%), Petronas (27.5%) and Kogas (15%), the 2 X 3.9 mmtpa **Gladstone LNG** project was 72% completed as of December 2013. First deliveries are still expected around the end of 2015. Out of the total capacity of 7.8 mmtpa, more than 90% of the LNG production (7.2 mmtpa) will be sold (50-50) to Malaysian and Korean partners, on a long term basis.

### Cameroon

• In Cameroon, the geotechnical and geophysical surveys were launched in 2013 on the future plant site of the GDF Suez-led **Cameroon LNG** project. The feedstock situation remains still uncertain. No FID date has been announced yet.

### Canada

• In British Columbia, five major LNG export projects - all sourced from unconventional gas - have been granted export licenses by the NEB (National Energy Board):

**- Kitimat LNG project,** developed by Chevron (50%) and Apache (50%) including two trains of 5 mmtpa.

**- LNG Canada project,** led by Shell (40%), Mitsubishi (20%), KOGAS (20%) and Petrochina (20%). Also located in the Kitimat district, the project includes four trains for a total capacity of 24 mmtpa.
Start-up of the first two trains is expected around 2019.

**- Prince Rupert project,** led by BG Group. Located on Ridley Island, the project was granted an export license for up to 21.6 mmtpa over a period of 25 years.

**- Pacific Northwest LNG:** Brunei has recently bought a 3% interest in the project led by Petronas (87%) and Japex (10%). Two 6 mmtpa trains are planned with a potential third train expansion. NEB granted an export license in December for 19.7 mmtpa over a period of 25 years, starting in 2019.

**- West Coast Canada LNG,** led by Exxon and Imperial Oil. The project was granted a license to export 30 mmtpa but various locations for the plant are still under assessment.

### Colombia

• In Colombia, Exmar is currently building the **Pacific Rubiales LNG** project. The 0.5 mmtpa FLRSU is planned to be on line by Q2 2015. Pacific Rubiales LNG signed an HOA with Gazprom Marketing & Trading for the first five years of production on an FOB basis.

### Egypt

• In Egypt, LNG production is in a critical situation due to government decision to save indigenous gas supply for the domestic market.
In these conditions, no LNG was produced from the Damietta plant in 2013, and both trains of Idku produced only at one third of the plant's capacity, i.e. around 2.8 Mt for the full year.

# Liquefaction plants 2013 (cont'd.)

**Indonesia**

• Indonesia struggled to maintain its production level - around 19 Mt- in 2013, and searched to limit exports and save gas supply (including LNG production) for domestic consumption.

• Within this framework, a 3rd LNG train (3.8 mmtpa) in Tangguh is still uncertain. FID could be reached in 2014 with first deliveries in 2019.

• Donggi-Senoro (1x2 mmtpa): the project led by Mitsubishi (45%), KOGAS (15%), Pertamina (29%) and Medco (11%) is currently dedicated to exports. The project is planned to be on line at the end of 2014.

• Pertamina has planned full decommissioning of the Arun plant in 2014. In 2013, the company reached FID for a new regasification facility, which will be the first conversion of a liquefaction plant into a regasification terminal.

**Israel**

• Developments of LNG exports from Israel are subject to the size of gas reserves (Tamar, Dalit and Leviathan fields) and to the level of domestic gas consumption. 2 floating LNG projects (3 mmtpa each) are currently under consideration.

**Malaysia**

• In Malaysia, Petronas took FID on a 9th liquefaction train of 3.6 mmtpa at Malaysia LNG (Bintulu - Sarawak), bringing the total liquefaction capacity of Bintulu to 27.8 mmtpa. The new train is planned to come on line at the end of 2015.

**Mozambique**

• In Mozambique, Anadarko and ENI's strategies to develop the country's huge gas reserves are still undefined given political and technical uncertainties. Two independent projects could emerge:

- The first one, onshore, led by Anardako (26.5%), Mitsui (20%), ONGC (16%), Bahrat Petroleum (10%), ENH Mozambique (15%), PTT E&P (8.5%) and Oil India (4%).

- The second project could be a 5 mmtpa FLNG developed by ENI (50 %), Petrochina (20 %), KOGAS (10 %), Galp Energia (10 %) and ENH Mozambique (10 %).

**Norway**

• In Snohvit, Statoil encountered operational issues in the first half of 2013, but production recovered at full capacity in the second half and reached 70% on average over the full year. Expansion for a second train is no longer under consideration for the time being.

**Papua New Guinea**

• In Papua New Guinea, the 6.9 mmtpa **PNG LNG** project is nearly completed and expected to come on line by mid-2014. SPAs for 6.5 mmtpa have been signed with Sinopec, Tepco, Osaka Gas and CPC, the remaining being sold under spot or short term deals. A 3rd train is under consideration, pending on additional reserves.

**Peru**

• In 2013, Repsol sold its 20% equity stake in the **Peru LNG** project and its 18 year offtake contract (100 % of LNG volumes) to Shell. The deal was finalized in January 2014.

**Russia**

• In December, Novatek and Total took FID for the 16.5 mmtpa **Yamal LNG** project (3x5.5 mmtpa trains). CNPC entered the project in January 2014 as a new partner (20% equity) diluting Novatek's share to 60%, Total remaining at 20%. The 1st train is targeted to be on stream in 2017.

**USA**

• In the United States, Cheniere took FID in May for two new trains (train 3 & 4) at **Sabine Pass**. The design capacity of the four trains is 18 mmtpa and the DOE approved 16 mmtpa of LNG exports (FTA and non-FTA) from these trains.

Four other export projects have been authorized to export LNG to both FTA and non-FTA countries but had not yet reached FID at the end of 2013:

- **Freeport** (Freeport LNG 100%) 13.2 mmtpa: FID should be reached in 2014 and production is planned to start in 2017-2018.

- **Lake Charles** (BG 50% and Energy Transfer-Southern Union 50%) 15 mmtpa: FID is planned to for 2015 with production starting in 2019

- **Cove Point** (Dominion – 100%) 5.25 mmtpa: FID is planned for 2014 and beginning of production for the end of 2017.

- **Cameron LNG** (Sempra LNG 50.2%, Mitsubishi, Mitsui & GDF SUEZ 16.6% each) 12 mmtpa: FID should be reached in 2014 and production is expected by 2018.

**Yemen**

• In Yemen, the plant produced at full capacity (7.2 mmtpa) in 2013.


# Liquefaction plants 2013

| Country | Site | Liquefaction | | Storage | | Owner(s) | Operator | Buyer(s) | Start-up date |
|---|---|---|---|---|---|---|---|---|---|
| | | Number of trains | Nominal capacity $10^6$ t per year | Number of tanks | Total capacity $m^3$ | | | | |
| **Atlantic Basin** | | | | | | | | | |
| **Algeria** | Arzew - Bethiova GL 1Z | 6 | 7.90 | 3 | 300 000 | Sonatrach | Sonatrach | GDF SUEZ, Botaş, SNAM-Rete Gas, Iberdrola, Depa, Cepsa Gas, Statoil, Endesa | 1978 |
| | Arzew - Bethiova GL 2Z | 3 | 8.30 | 3 | 300 000 | Sonatrach | Sonatrach | GDF SUEZ, Botaş, SNAM-Rete Gas, Iberdrola, Depa, Cepsa Gas, Statoil, Endesa | 1981 |
| | Skikda - GL1K/ GL2K | 3 | 3.20 | 5 | 308 000 | Sonatrach | Sonatrach | GDF SUEZ, Botaş, SNAM-Rete Gas, Iberdrola, Depa, Cepsa Gas, Statoil, Endesa | 1972-1981 |
| **Angola** | Soyo | 1 | 5.20 | 2 | 320 000 | Angola LNG (Chevron 36,4%, Sonangol 22,8%, BP 13,6%, ENI 13,6%, Total 13,6%) | Chevron | Spot & ST | 2013 |
| **Egypt** | Damietta | 1 | 5.00 | 2 | 300 000 | Union Fenosa Gas (80%), EGPC (10%), EGAS (10%) | SEGAS SERVICES | Union Fenosa Gas, BP | 2005 |
| | Idku | 2 | 7.20 | 2 | 280 000 | T1: BG (35.5%), Petronas (35.5%), GDF SUEZ (5%), Egyptian LNG (EGPC (12%), EGAS (12%) T2: BG(38%), Petronas (38%), EGAS (12%), EGPC (12%) | Egyptian LNG (EGPC, EGAS, BG, GDF SUEZ, Petronas) | GDF SUEZ (T1), BG (T2) | 2005 |
| **Equatorial Guinea** | Bioko Island | 1 | 3.70 | 2 | 272 000 | Marathon (60%), Sonagas (25%), Mitsui (8.5%), Marubeni (6.5%) | EG LNG | BG | 2007 |
| **Libya (stopped)** | Marsa-el-Brega | 4 | 3.20 | 2 | 96 000 | LNOC | LNOC | Gas Natural Fenosa | 1970 |
| **Nigeria** | Bonny Island (NLNG T1-3) | 3 | 9.60 | 3 | 336 800 | Nigeria LNG (NNPC 49%), Shell (25.6%), Total (15%), ENI (10.4%) | Shell | Enel, Gas Natural Fenosa, Botas, GDF SUEZ, GALP | 1999-2002 |
| | Bonny Island (NLNG T4 & 5) | 2 | 8.10 | | | Nigeria LNG (NNPC 49%), Shell (25.6%), Total (15%), ENI (10.4%) | Shell | BG, Shell, Iberdrola, Endesa, GALP, Total, ENI | 2006 |
| | Bonny Island (NLNG T6) | 1 | 4.10 | 1 | 84 200 | Nigeria LNG (NNPC 49%), Shell (25.6%), Total (15%), ENI (10.4%) | Shell | Total, Shell | 2008 |
| **Norway** | Hammerfest | 1 | 4.30 | 2 | 250 000 | Statoil (36.79%), Petoro (30%), TOTAL (18.4%), GDF SUEZ (12%), RWE (2.81%) | Statoil | Total, Statoil, GDF SUEZ, Iberdrola | 2007 |
| **Trinidad & Tobago** | Point Fortin | 4 | 15.50 | 4 | 524 000 | | Atlantic LNG | GDF SUEZ, Gas Natural Fenosa (T1) Naturgas, Repsol, BP, BG (T2-3), Repsol, BP, BG (T4) | 1999-2006 |
| | Atlantic LNG T1 | 1 | 3.30 | 2 | 204 000 | BP (34%), BG (26%), Repsol (20%), CIC (10%), NGC Trinidad (10%) | Atlantic LNG | | 1999 |
| | Atlantic LNG T2 & 3 | 2 | 7.00 | 1 | 160 000 | BP (42.5%), BG (32.5%), Repsol (25%) | Atlantic LNG | | 2002-2003 |
| | Atlantic LNG T4 | 1 | 5.20 | 1 | 160 000 | BP (37.8%), BG (28.9%), Repsol (22.2%) NGC Trinidad (11.1%) | Atlantic LNG | | 2006 |
| **Middle-East** | | | | | | | | | |
| **Abu Dhabi** | Das Island | 3 | 5.80 | 3 | 240 000 | ADNOC (70%), Mitsui (15%), BP (10%), Total (5%) | Adgas | The Tokyo Electric Power Co. | 1977 |
| **Oman** | Qalhat | 2 | 7.10 | 2 | 240 000 | Omani gvt (51%), Shell (30%), Total (5.5%), Korea LNG (5%), Mitsubishi (2.8%), Mitsui (2.8%), Partex (2.0%), Itochu (0.9%), | Oman LNG | KOGAS, Shell, Osaka Gas, BP, Itochu | 2000 |
| | | 1 | 3.60 | | | Omani gvt (46.8%), Oman LNG (36.8%), Union Fenosa Gas (7.4%), Osaka Gas (3%), Mitsubishi (3%), Itochu(3%) | Qalhat LNG | Mitsubishi, Osaka Gas, Union Fenosa Gas, Itochu | 2006 |
| **Qatar** | Ras Laffan (Qatargas 1 - T1 & 2) | 2 | 6.40 | 4 | 340 000 | Qatar Petroleum (65%), ExxonMobil (10%), Total (10%), Marubeni (7.5%), Mitsui (7.5%) | Qatargas I | Chubu Electric, The Chugoku Electric, The Kansai Electric, Osaka Gas, Toho Gas, Tohoku Electric, Tokyo Gas, The Tokyo Electric Power Co., Gas Natural Fenosa, PTT | 1999 |
| | Ras Laffan (Qatargas 1 - T3) | 1 | 3.10 | | | Qatar Petroleum (65%), ExxonMobil (10%), Total (10%), Marubeni (7.5%), Mitsui (7.5%) | Qatargas I | Tokyo Gas | 1999 |
| | Ras Laffan (Qatargas 2 - T1) | 1 | 7.80 | 8 | 1 160 000 | Qatar Petroleum (70%), ExxonMobil (30%) | Qatargas II | ExxonMobil, Chubu | 2009 |
| | Ras Laffan (Qatargas 2 - T2) | 1 | 7.80 | | | Qatar Petroleum (65%),ExxonMobil (18.3%),Total (16.7%) | Qatargas II | ExxonMobil, Total, CNOOC | 2009 |
| | Ras Laffan (Qatargas 3 - T1) | 1 | 7.80 | | | Qatar Petroleum (68.5%), ConocoPhillips (30%), Mitsui (1.5%) | Qatargas III | ConocoPhilips, Repsol, Centrica | 2010 |
| | Ras Laffan (Qatargas 4 - T1) | 1 | 7.80 | | | Qatar Petroleum (70%), Shell (30%) | Qatargas IV | Shell, Petrochina, Marubeni | 2011 |
| | Ras Laffan (Rasgas 1 T1 & 2) | 2 | 6.60 | 6 | 840 000 | Qatar Petroleum (63%), ExxonMobil (25%), KOGAS (5%, Itochu (4%), LNG Japan (3%) | RasGas I | KOGAS, ENI | 1999-2000 |
| | Ras Laffan (Rasgas 2 - T1) | 1 | 4.70 | | | Qatar Petroleum (70%), ExxonMobil (30%) | RasGas II | Petronet LNG | 2004 |
| | Ras Laffan (Rasgas 2 - T2) | 1 | 4.70 | | | Qatar Petroleum (70%, ExxonMobil (30%) | RasGas II | Endesa, Edison | 2005 |
| | Ras Laffan (Rasgas 2 - T3) | 1 | 4.70 | | | Qatar Petroleum (70%), ExxonMobil (30%) | RasGas II | Petronet, EDF, ENI, CPC | March 2007 |
| | Ras Laffan (Rasgas 3 - T1) | 1 | 7.80 | | | Qatar Petroleum (70%), ExxonMobil (30%) | RasGas III | Petronet, KOGAS | August 2009 |
| | Ras Laffan (Rasgas 3 - T2) | 1 | 7.80 | | | Qatar Petroleum (70%), ExxonMobil (30%) | RasGas III | ExxonMobil | April 2010 |
| **Yemen** | Balhaf - T1 & 2 | 2 | 6.70 | 2 | 280 000 | Yemen LNG (Total 39.6%, Hunt Oil Co. 17.2%, SK Corp. 9.6%, KOGAS 6%, Yemen Gas Co. 16.7%, Hyundai 5.9%, GASSP 5%) | Yemen LNG | KOGAS, GDF SUEZ, Total | October 2009 & April 2010 |
| **Pacific Basin** | | | | | | | | | |
| **Australia** | Withnell Bay - Trains 1-4 | 4 | 12.10 | 4 | 260 000 | Woodside, Shell, BHP, BP Australia, Chevron (17% each) Mitsubishi , Mitsui (8% each) | Woodside | The Tokyo Electric Power Co., Chubu Electric, The Kansai Electric, The Chugoku Electric, Kyushu Electric, Tokyo Gas, Osaka Gas, Shizuoka Gas, Tohoku Electric, Nippon Gas, KOGAS, Shell Hazira Gas, DPLNG | Trains 1 & 2: 1989; Train 3: 1992, Train 4: 2004 |
| | Withnell Bay - Train 5 | 1 | 4.30 | 1 | 65 000 | Woodside, Shell, BHP, BP Australia, Chevron (17% each) Mitsubishi, Mitsui (8% each) | Woodside | The Tokyo Electric Power Co., Chubu Electric, The Kansai Electric, The Chugoku Electric, Kyushu Electric, Tokyo Gas, Osaka Gas, Shizuoka Gas, Tohoku Electric, Nippon Gas, KOGAS, Shell Hazira Gas, DPLNG | 2008 |
| | Darwin | 1 | 3.40 | 1 | 188 000 | ConocoPhillips (57%), ENI, Santos, Inpex (11% each) The Tokyo Electric Power Co. (6%), Tokyo Gas (3%) | ConocoPhillips | The Tokyo Electric Power Co., Tokyo Gas | 2006 |
| | Pluto | 1 | 4.30 | 2 | 240 000 | Woodside (90%), The Kansai Electric (5%), Tokyo Gas (5%) | Woodside | The Kansai Electric, Tokyo Gas, Petronas | 2012 |

## Liquefaction plants 2013 (cont'd.)

| Country | Site | Liquefaction: Number of trains | Liquefaction: Nominal capacity $10^6$ t per year | Storage: Number of tanks | Storage: Total capacity $m^3$ | Owner(s) | Operator | Buyer(s) | Start-up date |
|---|---|---|---|---|---|---|---|---|---|
| **Brunei** | Lumut | 5 | 7.10 | 3 | 195 000 | Brunei gvt (50%), Shell (25%), Mitsubishi (25%) | Brunei LNG Sdn Bhd | Tokyo Gas, The Tokyo Electric Power Co., Osaka Gas, KOGAS | 1973 |
| **U.S.A. (stopped in 2013)** | Kenai | 1 | 1.40 | 3 | 108 000 | ConocoPhillips | ConocoPhillips | Tokyo Gas, The Tokyo Electric Power Co. | 1969 |
| **Indonesia** | Blang Lancang - Arun | 2 | 4.20 | 5 | 636 000 | Pertamina | PT Arun NGL Co. (Pertamina 55%, ExxonMobil 30%, JILCO 15%) | KOGAS | 1978-1979 |
| | Bontang - Badak | 8 | 22.30 | 6 | 630 000 | Pertamina | Pertamina (55%), VICO (BP, ENI, 20%), JILCO (15%), Total (10%) | | |
| | Badak A & B | 2 | | | | | | The Kansai Electric, Chubu Electric, Kyushu Electric, Osaka Gas, Toho Gas, Nippon Steel Co. | 1977 |
| | Badak C & D | 2 | | | | | | The Kansai Electric, Chubu Electric, Osaka Gas, Toho Gas | 1983 |
| | Badak E | 1 | | | | | | CPC | 1990 |
| | Badak F | 1 | | | | | | Tokyo Gas, Osaka Gas, Toho Gas, Hiroshima Gas, Nippon Gas | 1994 |
| | Badak G | 1 | | | | | | KOGAS | 1998 |
| | Badak H | 1 | | | | | | CPC | 1998 |
| | Tangguh | 2 | 7.60 | 2 | 340 000 | Tangguh LNG (BP 37.16%, CNOOC 13.9%, JX Nippon 13.5%, Mitsubishi 9.9%, INPEX 7.8%, LNG Japan 7.4%, KG Berau 5%, Talisman 3.1%, Mitsui 2.3%) | Tangguh LNG | KOGAS, Posco, SK Energy Co., CNOOC, Chubu Electric, Tohoku Electric, Sempra LNG, | 2009 |
| **Malaysia** | Bintulu MLNG 1 (Satu) | 3 | 8.10 | 6 | 390 000 | Petronas (90%), Mitsubishi (5%), Sarawak state gvt (5%) | Petronas | Tokyo Gas, The Tokyo Electric Power co., Saibu Gas, Shikoku Electric, Hiroshima Gas | 1983 |
| | Bintulu MLNG 2 (Dua) | 3 | 7.80 | | | Petronas (60%), Shell (15%), Mitsubishi (15%), Sarawak state gvt (10%) | Malaysia LNG Dua | Chubu Electric, Tokyo Gas, Osaka Gas, Toho Gas, The Kansai Electric, Shizuoka Gas, Tohoku Electric, Sendai City Gas, KOGAS, CPC | 1995 |
| | Bintulu MLNG 2 (Dua) - debottleneck | 1 | 1.50 | | | Petronas (60%), Shell (15%), Mitsubishi (15%), Sarawak state gvt (10%) | Malaysia LNG Dua | Chubu Electric, Tokyo Gas, Osaka Gas, Toho Gas, The Kansai Electric, Shizuoka Gas, Tohoku Electric, Sendai City Gas, KOGAS, CPC | 2010 |
| | Bintulu MLNG 3 (Tiga) | 2 | 6.80 | | | Petronas (60%), Shell (15%), JX Nippon Oil (10%), Sarawak state gvt (10%), Mitsubishi (5%) | Malaysia LNG Tiga | Tokyo Gas, Osaka Gas, Toho Gas, Tohoku Electric, Japex, KOGAS, CNOOC | 2003 |
| **Peru** | Peru LNG | 1 | 4.45 | 2 | 260 000 | Hunt Oil (50%), Shell (20%), SK Energy (20%), Marubeni (10%) | Hunt Oil | Shell | 2010 |
| **Russia** | Sakhalin 2 | 2 | 9.55 | 2 | 200 000 | Sakhalin Energy Invest Co. (Gazprom 50%, Shell 27.5%, Mitsui 12.5%, Mitsubishi 10%) | Sakhalin Energy Invest Co. (Gazprom 50%, Shell 27.5%, Mitsui 12.5%, Mitsubishi 10%) | Gazprom, Shell, KOGAS, Chubu Electric, Hiroshima Gas, Kyushu Electric, Osaka Gas, Saibu Gas, Toho Gas, Tohoku Elec, The Tokyo Electric Power Co., Tokyo Gas | 2009 |
| | ***Total*** | ***86*** | ***286.00*** | | ***9 779 000*** | | | | |



# Regasification plants

**104 LNG receiving terminals - including 15 floating facilities - were in operation at the end of 2013. Israel, Malaysia and Singapore joined the ranks of LNG importers in 2013, which brings to 29 the number of receiving countries.**
**At the end of the year, the combined nominal send-out capacity of the facilities reached 721 mmtpa (974 bcm/y). Total storage capacity exceeded 50 $10^6$ $m^3$ of LNG, a 9% increase over the previous year.**
**Compared to an annual LNG consumption of 236.9 mmtpa, the global average utilization rate of regasification facilities slightly decreased to 33%.**

**12 new receiving terminals – including 5 floating units - were commissioned in 2013, adding a 39.8 mmtpa regasification capacity:**

**9 in Asia, including 4 in China, 2 in India and 1 in Japan, Malaysia and Singapore**

- Dongguan (China, 1 mmtpa)
- Tangshan (China, 3.5 mmtpa)
- Tianjin (China, FSRU, 2.2 mmtpa)
- Zhuhai (China, 3.5 mmtpa)
- Dabhol (India, 5 mmtpa)
- Kochi (India, 5 mmtpa)
- Naoetsu (Japan, 1.5 mmtpa)
- Melaka (Malaysia, 2 FSUs, 3.8 mmtpa)
- Singapore (Singapore, 6 mmtpa)

**1 in Europe**

- Livorno (Italy, FSRU, 2.7 mmtpa)

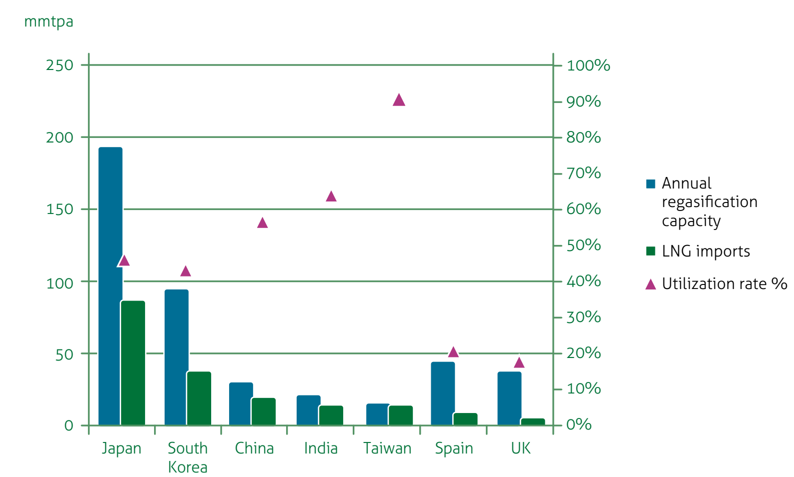
**1 in America (South)**

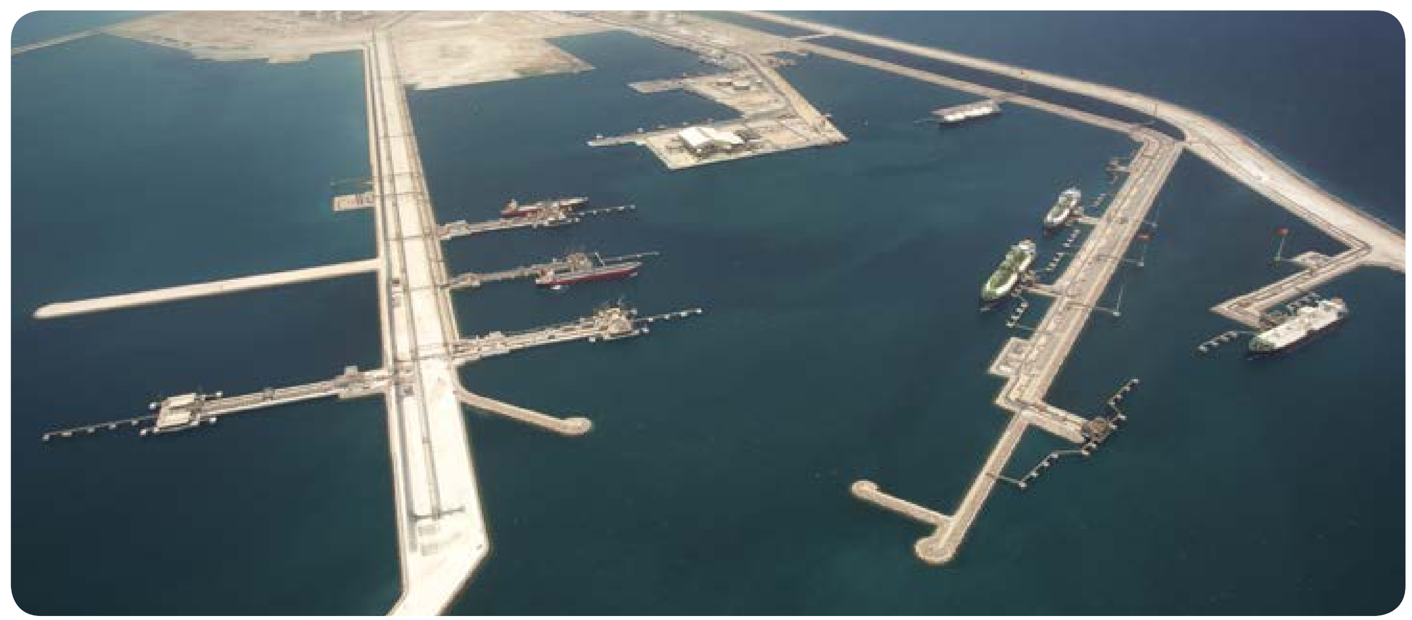
- Bahia [TBRA] (Brazil, FSRU, 3.8 mmtpa)

**And 1 in the Middle East**

- Hadera (Israel, FSRU 1.8 mmtpa)

*Regasification capacity vs LNG imports in 2013*



## Regasification plants (cont'd.)

### Belgium

• In **Zeebrugge,** next to the existing CHP plant, Fluxys started construction of an open-rack vaporizer in order to further reduce fuel gas consumption. The company also started building installations for a second jetty. Commissioning is scheduled for 2015. During the year, a market consultation for long-term LNG truck loading services was conducted.

### Brazil

• In Brazil, Petrobras installed a 3rd FSRU in **Bahia**. The terminal -with a capacity of 3.8 mmtpa- came on stream at the end of 2013.
In Guanabara Bay, the company projects to install a new vessel named "VT3", a 5.3 mmtpa FSRU currently developed by Excelerate and aiming to start operations in May of 2014 under a 15 year charter.

### Chile

• In September 2013, BG Group completed its transaction to sell its final 20% equity interest in the **Quintero LNG** regasification terminal. New partners are Enagas (40%), ENAP (20%), Endesa (20%) and Metrogas (20%). Plans for expansion of the regasification capacity (from 2.7 mmtpa to 4 mmtpa) and of the truck loading facility (from 1.250 to 2.500 m³/d) are underway.

2 other terminals are currently under construction in Chile:

- Colbun (3.8 mmtpa), dedicated to supply LNG to power plants owned by Colbun and AES

- GasAtacama (1.1 mmtpa), which will be located in the Bay of Meijillones and will be connected to the GasAtacama power plant.

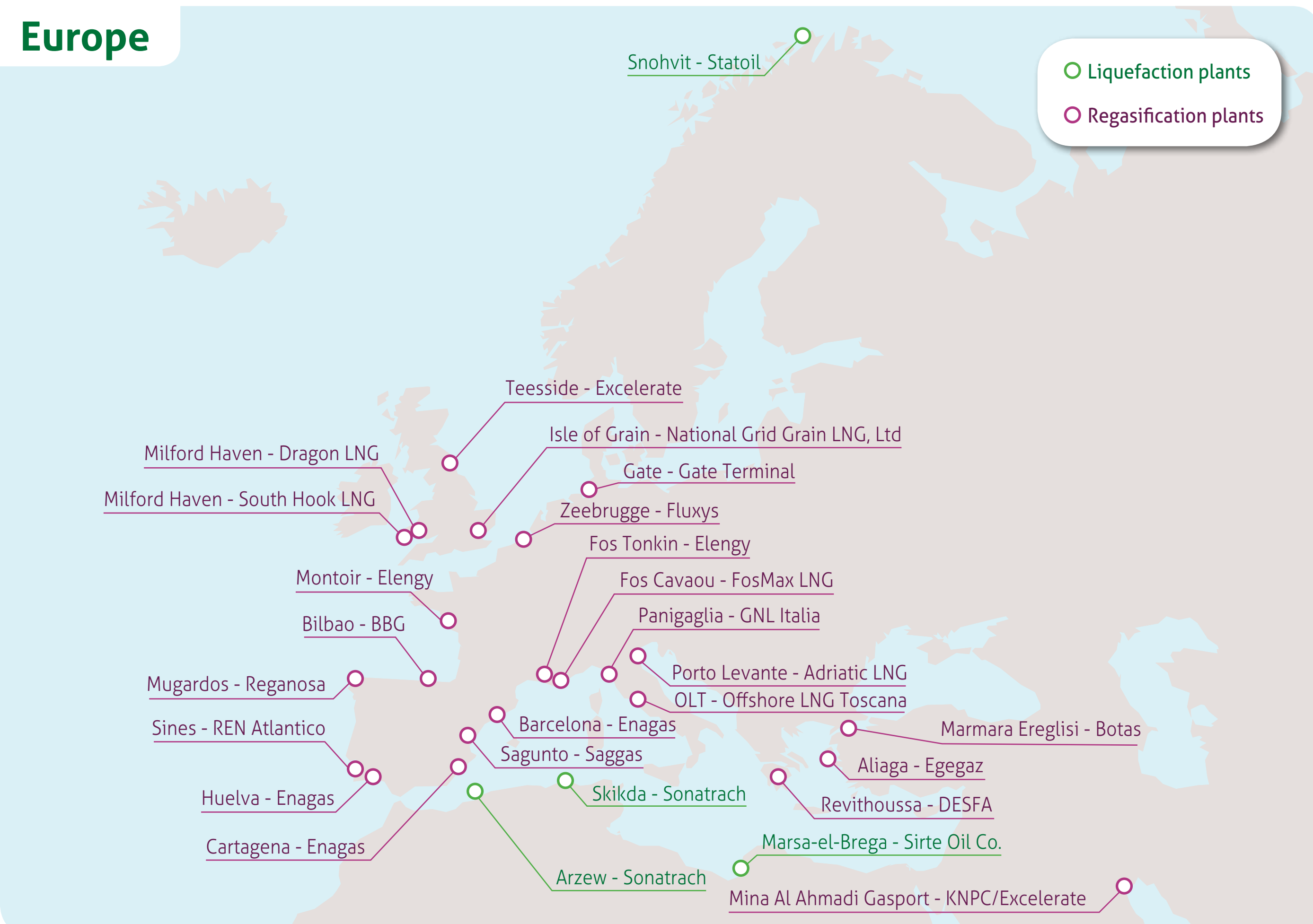
The two FSRUs are scheduled to be operational respectively in 2015 and 2017.

### China

• In October, CNOOC opened a 3.5 mmtpa terminal in **Zhuhai**. Qatar delivered the first commissioning cargo.

• CNOOC also inaugurated the **Tianjin** floating LNG import terminal, which received its first cargo in November. The facility - a 2.2 mmtpa shuttle and regasification vessel chartered by GDF SUEZ (GDF SUEZ Cape Ann) - is the first floating terminal in operation in China.

• The **Tangshan** regasification terminal - a 3.5 mmtpa owned by PetroChina, Beijing Enterprises Group and Hebei Natural Gas Co. Ltd-started commercial operations in 2013. The Q-Flex vessel Al Gharrafa delivered the first cargo in the Caofeidian port in Tangshan in November.




• Chinese private group Jovo Group opened the small scale LNG terminal in **Dongguan** (1 mmtpa). Within the framework of an agreement between Petrochina and Jovo Group, LNG deliveries to Dongguan are quantities diverted from the Dalian terminal.

• Four other terminals are under construction, two of which are expected to be operational in 2014:

- Hainan LNG, a 2 mmtpa project led by CNOOC

- Qingdao, a 3 mmtpa project led by Sinopec

• In **Guangdong,** the 4th storage tank at GDLNG terminal is expected to be operational in 2014.

### France

• In **Montoir,** the renovation works at the terminal have been completed. An LNG transshipment service was launched in July, and three operations had been performed as of end of the year. In addition, an LNG truck loading service started in July.

• In **Fos-Cavaou,** the public consultation aiming to double terminal capacities was finalized. The plant received its first Q-Max in August, and its 200th delivery in December.

• In **Fos-Tonkin,** an LNG truck loading service is planned to be installed in 2014.

• In **Dunkirk,** the construction of the terminal - a 9.4 mmtpa regasification unit - is on schedule, and the last dome of the three tanks was installed in August. Starting date is still expected for the end of 2015.

### India

• In India, 2 terminals started in 2013:

- the 5 mmtpa **Dabhol LNG terminal** (Gail 31.5%, NTPC 31.5%, financial Institutions 20.3%, others 16.7%) was commissioned in January and received six cargoes in 2013. Due to the absence of a breakwater (still to be built), the terminal could only operate at about 60% of its capacity.

- the **Kochi LNG** terminal was successfully commissioned by Petronet and the first cargo was delivered in the 2nd half of August. Due to the absence of pipeline to carry the fuel to Karnataka and Tamil Nadu, the terminal operated below 10% of full capacity in 2013.

• In **Dahej,** the 2nd jetty is more than 90% complete and likely to be operational in 2014: the jetty will increase the terminal's capacity from 10 mmtpa to 12.5 mmtpa. In 2013, Petronet received its 1000th cargo at the Dahej LNG Terminal.

• In **Hazira,** regasification capacity was increased in 2013 to 244 Bcf/y (5 mmtpa). A potential expansion to 343 Bcf/y (7 mmtpa) by 2017-2018 has been evaluated.

### Indonesia

• Following the start-up of the **Nusantara Regas** terminal in 2012, PGN and Pertamina are developing another FSRU (a 170 000 m³ unit with a capacity of 2 mmtpa) on the eastern coast of Sumatra - **Lampung LNG**- which could be operational in 2014.

• In addition, the **Arun LNG** terminal, a third floating facility with a capacity of 1.5 mmtpa - using existing tanks of the old liquefaction plant - could also come on stream in 2014.

### Israel

• In January, Israel Natural Gas Lines launched the 3.7 mmtpa **Hadera LNG** terminal, operated by Excelerate. The terminal received 0.4 Mt of LNG in 2013.


### Italy

• The commissioning of the FSRU **"Offshore LNG Toscana "** - a 2.7 mmtpa regasification capacity plant - was successfully finalized at the end of 2013. Commercial activities started in December. The OLT project is owned by E.ON (46.79%), IREN Group (46.79%), OLT Energy Toscana (3.73%) and Golar LNG (2.69%).

• In **Panigaglia,** the upgrade of the regasification terminal has been officially requested in order to expand the capacity from 2.5 to 5.8 mmtpa. The expansion project includes: the possibility to unload larger ships (up to 140.000 m³), a revamping process of the plant's main equipments involving the storage tanks and the berthing area, and the installation of a new cogeneration plant (32 MW) for self-production of electricity.

### Japan

• Naoetsu LNG Terminal - the 1.5 mmtpa terminal developed by Inpex - received a commissioning cargo in August and started its operations in December 2013.

Four other LNG terminals are currently under construction in Japan:

- **Hachinohe LNG** terminal (1.5 mmtpa) developed by JX Nippon Oil and scheduled to start operations in April 2015.

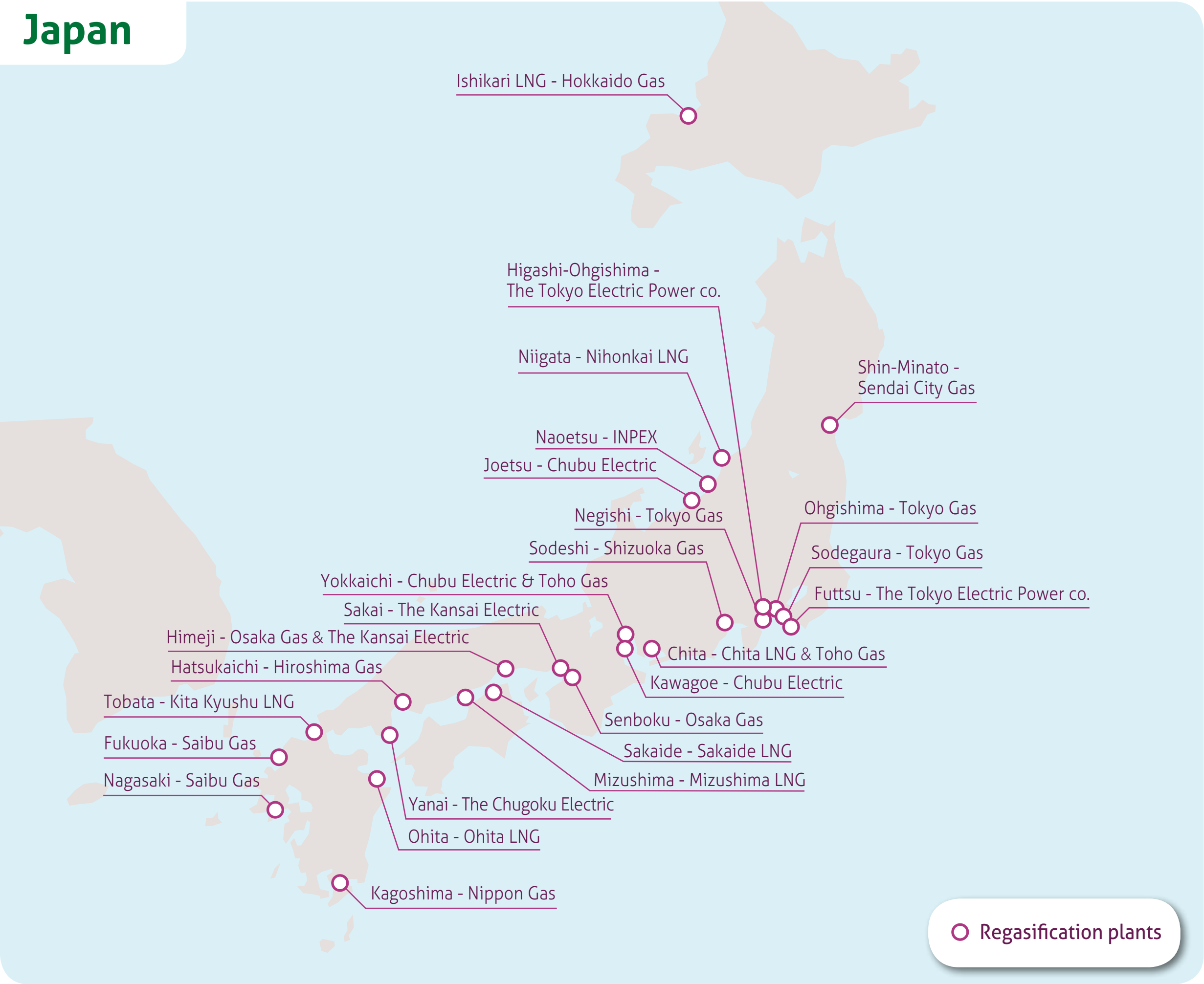
- **Kushiro LNG,** a 0.5 mmtpa satellite terminal developed by JX Nippon Oil on Hokkaido Island and which will receive deliveries from the Hachinohe terminal, starting in 2015.

- **Hibiki,** developed by Saibu Gas, with a capacity of 3.5 mmtpa and expected start-up in 2014.

- **Hitachi,** developed by Tokyo gas, expected to come online in 2016.

## Regasification plants (cont'd.)

### Japan




On existing terminals:

- In Ohgishima, a new tank of 250 000 m³ became operational in 2013.

- In Ishikari, the 2nd tank (200 000 m³) is currently under construction and will be operational in 2016.

- A connecting pipe between Chubu's Kawagoe power plant, Toho Gas Yokkaichi Works terminal and the Chita LNG terminal was completed, enhancing fuel supply reliability to Chubu's thermal power station and improving the security of city gas supplies for Toho Gas.

**Jordan**

• Due to the interruption of Egyptian gas supplies, Jordan has decided to develop a 3.5 mmtpa floating regasification terminal to be located offshore of Aqaba (Red Sea). The plant - expected to be on line in 2015 - will be operated under a 5 year charter agreement, with a potential expansion to a 10 year period.

**Lithuania**

• Hoegh LNG has secured financing for a 2.2 mmtpa FSRU which will be leased by the Lithuanian oil company Klaipedos Nafta. The floating terminal will be installed in the port of Klaipeda. It is expected to be delivered in 2014 with possible start-up of operations at the end of the year.

**Malaysia**

• In **Melaka,** Malaysia's first LNG regasification terminal became operational in 2013. The facilities (operated by Petronas Gas, a full subsidiary of Petronas) have a maximum capacity of 3.8 mmtpa. The terminal is comprised of two floating storage units (FSUs) connected to an island jetty and onshore regasification facilities.

**Phillipines**

• To meet near-term gas demand, the Phillipines are considering an LNG regasification project on a basis of a 1.5 mmtpa plant with target date for operation in 2015. A temporary floating terminal could be installed in 2014.

**Poland**

• The construction of the **Swinoujscie** receiving terminal (a 3.6 mmtpa facility) is underway, with end of 2014 as new starting date. Polskie LNG S.A. is already considering the expansion of the terminal, which could include the construction of a 3rd tank and of reloading, bunkering and truck loading facilities.

**Portugal**

• In **Sines,** following the first 2 mmtpa phase expansion in 2012, new expansion plans could add 3.1 mmtpa of additional capacity to the existing capacity.

**Singapore**

• The 6 mmtpa **Singapore LNG (SLNG)** terminal became operational in May 2013. Located on Jurong Island, the project is owned by the Singapore Energy Market Authority, who plans to expand the capacity of the terminal to 9 mmtpa with the addition of a 4th tank.

**South Korea**

• In South Korea, 2 new LNG regasification terminals are under construction:

- In Samcheok, a 6.8 mmtpa terminal with 12 storage tanks of 200 000 m³ - operated by KOGAS - is expected to be operational in 2014 or 2015.

- In Boryeong, a 1.5 mmtpa capacity plant with two 160 000 m³ storage tanks - operated by SK E&S and GS Caltex- is expected to come on stream in 2015.

**Spain**

• In **Bilbao,** the construction of a new 150.000 m³ tank - expected for July 2014 - will add 2.6 mmtpa of capacity to the plant.

**Taiwan**

• In 2014, CPC will perform dredging work in **Yung-An** in order to accommodate Q-Max vessels. CPC also plans to build 3 additional tanks in **Taichung,** expected to be operational in 2019.

**Turkey**

• Botas plans to expand the existing **Marmara** terminal by adding one 160 000 m³ storage tank and upgrading the output by 50% (4.5 mmtpa to 6.8 mmtpa). The new jetty will allow all LNG carriers including Q-Flex and Q-Max to access the terminal.

**Uruguay**

• Located in the Punta Sayago area, close to Montevideo, the offshore terminal **GNL del Plata** will comprise an FSRU and a jetty, protected by a 1.5 km breakwater. The terminal (2.7 mmtpa) will be able to receive LNG carriers up to 218 000 m³, the off-taker of the deliveries being Gas Sayago. The new terminal is expected to be operational in 2015. The regasification vessel GDF SUEZ Neptune will be used as a bridge solution before the delivery of the new-built FSRU.

**Ukraine**

• On the coast of the Black Sea, Ukraine plans to install a LNG regasification terminal. The first stage of the plant will include a 3.6 mmtpa FSRU, expected to become operational in 2014.

### North America

# Regasification Terminals in 2013

| Country | Site | Storage: Number of onshore tanks | Storage: Total capacity in liq m³ | Send-out: Number of vaporizers | Send-out: Nominal capacity in NG bcm/y | Owner | Operator | T.P.A. | Main source(s) of import | Start-up date |
|---|---|---|---|---|---|---|---|---|---|---|
| **AMERICAS** | | | | | | | | | | |
| **Argentina** | Bahia Blanca *(F) | | 151 000 | 6 | 5.1 | Enarsa | Excelerate Energy | No | Trinidad & Tobago | 2008 |
| | Escobar *(F) | | 151 000 | 6 | 5.1 | UTE Escobar (50% Enarsa, 50% YPF) | GNL Escobar | No | Trinidad & Tobago | 2011 |
| **Brazil** | Bahia (TBRA) *(F) | | 137 000 | | 5.2 | Petrobras | Petrobras | No | | 2013 |
| | Guanabara Bay *(F) | | 151 000 | 6 | 5.0 | Petrobras | Petrobras | No | Trinidad & Tobago, Nigeria, Re-exports from Europe | 2009 |
| | Pecem *(F) | | 129 000 | 2 | 2.5 | Petrobras | Petrobras | No | Trinidad & Tobago, Nigeria, Re-exports from Europe | 2009 |
| **Canada** | Canaport LNG | 3 | 160 000 | 8 | 10.0 | Repsol Energy Canada Ltd (74.25%), Irving Canaport LP Co. Ltd (24.75%), Repsol Canada Ltd (0.75%), Irving Canaport GP Co. (0.25%) | Repsol Canada Ltd | Yes (but no R.T.P.A.) | Trinidad & Tobago, Qatar | 2009 |
| **Chile** | Mejillones | 1 | 175 000 | 3 | 2.0 | Codelco (37%), GDF SUEZ (63%) | GNLM | Yes | Yemen | 2010 |
| | Quintero | 3 | 334 000 | 3 | 3.7 | Enagas (40%), ENAP (20%), Endesa (20%), Metrogas (20%) | GNL Quintero S.A. | Yes | Trinidad & Tobago | 2009 |
| **Dominican Rep.** | Punta Caucedo | 1 | 160 000 | 2 | 2.3 | AES | AES | No | Trinidad & Tobago | 2003 |
| **Mexico** | Altamira | 2 | 300 000 | 5 | 7.8 | Terminal de LNG de Altamira (Vopak 60%, Enagas 40%) | Terminal de LNG de Altamira (Vopak 60%, Enagas 40%) | Yes | Nigeria, Qatar, Yemen | 2006 |
| | Energia Costa Azul | 2 | 320 000 | 6 | 10.3 | Energia Costa Azul (100% Sempra LNG) | Energia Costa Azul | Yes | Indonesia | 2008 |
| | Manzanillo | 2 | 300 000 | | 5.2 | Samsung (37.5%), KOGAS (25%), Mitsui (37.5%) | KOGAS | | Nigeria, Peru | 2012 |
| **Puerto Rico** | Penuelas | 1 | 160 000 | 2 | 3.8 | (100% Sempra LNG) | Eco Electrica | | Trinidad & Tobago | 2000 |
| **U.S.A.** | Cameron LNG | 3 | 480 000 | 10 | 15.5 | Sempra | Sempra | Yes | | 2009 |
| | Cove Point | 5 | 380 000 | 10 | 10.7 | Dominion Cove Point LNG | Dominion Cove Point LNG | Shell, BP, Statoil, Peakers 1/4 each | Nigeria, Trinidad | 1978, restarted 2003 |
| | Cove Point Expansion | 2 | 320 000 | 15 | 8.0 | Dominion Cove Point LNG | Dominion Cove Point LNG | Statoil | Nigeria, Trinidad | 2008 |
| | Elba Island | 5 | 535 000 | 11 | 16.3 | Southern LNG (Kinder Morgan) | Southern LNG | Yes | Trinidad & Tobago | 1978, restarted 2001, expanded 2006, expanded 2010 |
| | Everett | 2 | 155 000 | 4 | 6.9 | GDF SUEZ | GDF SUEZ | Yes | Trinidad & Tobago, Yemen | 1971 |
| | Freeport LNG | 2 | 320 000 | 7 | 18.0 | Freeport LNG Development, L.P. | Freeport LNG Development, L.P. | Yes | Various | 2008 |
| | Golden Pass | 5 | 775 000 | 8 | 21.4 | QP (70%) Exxon (17.6%), Conoco Philips (12.4%) | Golden Pass LNG | No | Qatar | 2010 |
| | Gulf LNG Energy | 2 | 320 000 | | 12.0 | GE (30%), Kinder Morgan (50%), Sonangol (20%) | Gulf LNG Energy | No | Angola | 2011 |
| | Lake Charles | 4 | 425 000 | 14 | 24.3 | Trunkline LNG | Trunkline LNG | Yes | Egypt, Equatorial Guinea, Trinidad & Tobago | 1982, Infrastructure enhancement project completed March 2010 |
| | Northeast Gateway *(F) | | 151 000 | 6 | 11.8 | Excelerate Energy | Excelerate Energy | | | 2008 |
| | Sabine Pass | 5 | 800 000 | 16 | 41.4 | Cheniere Energy | Cheniere Energy | Total, Chevron, CMI | Trinidad & Tobago | 2008 |
| | | **50** | **7289000** | | **254** | | | | | |

*(F) : Floating

| Country | Site | Storage: Number of onshore tanks | Storage: Total capacity in liq m³ | Send-out: Number of vaporizers | Send-out: Nominal capacity in NG bcm/y | Owner | Operator | T.P.A. | Main source(s) of import | Start-up date |
|---|---|---|---|---|---|---|---|---|---|---|
| **ASIA** | | | | | | | | | | |
| **China** | Dalian | 3 | 480 000 | 3 | 4.1 | Petrochina (75%), other companies | Petrochina | No | Qatar | 2011 |
| | Dapeng, Shenzhen | 3 | 480 000 | 7 | 9.2 | CNOOC (33%), BP (30%), other companies | GDLNG | No | Australia, Qatar, Yemen | 2006 |
| | Dongguan, Guangdong province | 2 | 160 000 | | 1.4 | Jovo Group | | | Malaysia | 2013 |
| | Fujian | 2 | 320 000 | | 3.6 | Fujian LNG (CNOOC 60%, Fujian Inv. & Dev.Co. 40%) | CNOOC | No | Indonesia | 2008 |
| | Rudong, Jiangsu | 2 | 320 000 | 3 | 4.8 | Petrochina (55%), other companies | Petrochina | No | Qatar | 2011 |
| | Shanghai, Mengtougou | 3 | 120 000 | | 0.2 | Shanghai Gas Group | Shanghai Gas Group | No | Malaysia | 2008 |
| | Shanghai LNG | 3 | 495 000 | | 4.1 | Shanghai LNG (CNOOC 45%, Shenergy Group Ltd 55%) | CNOOC | No | Malaysia | 2009 |
| | Tangshan (Caofeidian) | 3 | 480 000 | | 4.8 | Petrochina | Petrochina, Beijing Entreprises | | Equatorial Guinea, Qatar | 2013 |
| | Tianjin *(F) | 2 | 60 000 | | 3.0 | CNOOC | Hoegh LNG | | | 2013 |
| | Zhejiang, Ningbo | 3 | 480 000 | | 4.1 | CNOOC (51%), other companies | CNOOC | No | Egypt, Nigeria, Qatar | 2012 |
| | Zuhai, Guangdong province | 3 | 480 000 | | 4.8 | CNOOC | | | | 2013 |
| **India** | Dabhol | 2 | 320 000 | 6 | 2.7 | Ratnagiri Gas & PowerLtd (GAIL, NTPC) | Gail | No | Spot | 2013 |
| | Dahej | 4 | 592 000 | 19 | 12.5 | Petronet LNG | Petronet LNG | Yes (on a cargo by cargo basis) | Nigeria, Qatar, Yemen | 2004, expansion in July 2009 |
| | Hazira | 2 | 320 000 | 5 | 6.9 | Hazira LNG Private Ltd (Shell 74%, Total 26%) | Hazira LNG Private Ltd | No | Qatar | 2005 |
| | Kochi | 2 | 368 000 | 6 | 6.3 | Petronet LNG | Petronet LNG | Yes (on a cargo by cargo basis) | Qatar | 2013 |
| **Indonesia** | Nusantara Regas Satu *(F) | | | | 5.0 | Golar LNG Partners | PT Nusantara Regas (JV Pertamina & PGN) | No | Indonesia | 2012 |
| **Japan** | Chita | 7 | 640 000 | 11 | 14.8 | Chita LNG | Chita LNG | Yes | Indonesia, Malaysia, Australia, Qatar, Algeria | 1983 |
| | Chita Kyodo | 4 | 300 000 | 14 | 9.9 | Toho Gas / Chubu Elec | Toho Gas | negotiated T.P.A. | Indonesia, Malaysia, Australia, Qatar, Russia | 1978 |
| | Chita-Midorihama Works | 2 | 400 000 | 7 | 9.2 | Toho Gas | Toho Gas | negotiated T.P.A. | Indonesia, Malaysia, Australia, Qatar, Russia | 2001 |
| | Fukuoka | 2 | 70 000 | 7 | 1.1 | Saibu Gas | Saibu Gas | Yes | Malaysia | 1993 |
| | Futtsu | 10 | 1 110 000 | 13 | 26.0 | The Tokyo Electric | The Tokyo Electric | Yes | Malaysia, Qatar, Australia, Oman, Abu Dhabi, Russia | 1985 |
| | Hatsukaichi | 2 | 170 000 | 4 | 1.2 | Hiroshima Gas | Hiroshima Gas | No | Indonesia, Malaysia, Russia | 1996 |
| | Higashi-Ohgishima | 9 | 540 000 | 9 | 18.0 | The Tokyo Electric | The Tokyo Electric | Yes | Malaysia, Qatar, Australia, Oman, Abu Dhabi, Brunei, Russia | 1984 |
| | Himeji | 8 | 740 000 | 6 | 6.4 | Osaka Gas | Osaka Gas | Yes | Indonesia, Malaysia, Australia, Qatar, Oman, Brunei, Russia | 1984 |
| | Himeji LNG | 7 | 520 000 | 8 | 11.0 | Kansai Electric | Kansai Electric | Yes | Australia, Qatar, Equatorial Guinea, Indonesia | 1979 |
| | Ishikari LNG | 1 | 180 000 | 3 | 2.3 | Hokkaido Gas | Hokkaido Gas | | Russia, Australia | 2012 |

*(F) : Floating

# Regasification Terminals in 2013 (cont'd.)

| Country | Site | Storage: Number of onshore tanks | Storage: Total capacity in liq m³ | Send-out: Number of vaporizers | Send-out: Nominal capacity in NG bcm/y | Owner | Operator | T.P.A. | Main source(s) of import | Start-up date |
|---|---|---|---|---|---|---|---|---|---|---|
| Japan | Joetsu | 3 | 540 000 | 8 | 3.2 | Chubu Electric | Chubu Electric | | Indonesia, Malaysia, Australia, Qatar, Russia | 2011 |
| | Kagoshima | 2 | 86 000 | 3 | 0.3 | Nippon Gas | Nippon Gas | No | Indonesia, Australia | 1996 |
| | Kawagoe | 6 | 840 000 | 7 | 6.7 | Chubu Electric | Chubu Electric | Yes | Indonesia, Malaysia, Australia, Qatar, Russia | 1997 |
| | Mizushima | 2 | 320 000 | 6 | 5.8 | Mizushima LNG | Mizushima LNG | Yes | Australia, Qatar, Oman | 2006 |
| | Nagasaki | 1 | 35 000 | 3 | 0.2 | Saibu Gas | Saibu Gas | Yes | Malaysia, Russia | 2003 |
| | Naoetsu | 2 | 360 000 | 4 | 2.0 | INPEX Corporation | INPEX Corporation | No | Indonesia | 2013 |
| | Negishi | 14 | 1 180 000 | 13 | 13.8 | Tokyo Gas / The Tokyo Electric | Tokyo Gas / The Tokyo Electric | Negotiated T.P.A. | Indonesia, Malaysia, Australia, Qatar, Brunei, Russia | 1969 |
| | Niigata | 8 | 720 000 | 14 | 11.6 | Nihonkai LNG | Nihonkai LNG | Yes | Indonesia, Malaysia, Qatar, Australia, Russia | 1984 |
| | Ohgishima | 4 | 850 000 | 11 | 12.8 | Tokyo Gas | Tokyo Gas | Negotiated T.P.A. | Indonesia, Malaysia, Australia, Qatar, Brunei, Russia | 1998 |
| | Oita | 5 | 460 000 | 6 | 6.3 | Oita LNG | Oita LNG | Yes | Indonesia, Australia, Russia | 1990 |
| | Sakai | 3 | 420 000 | 6 | 8.7 | Kansai Electric | Kansai Electric | Yes | Australia, Qatar, Equatorial Guinea, Indonesia | 2006 |
| | Sakaide | 1 | 180 000 | 3 | 1.6 | Sakaide LNG | Sakaide LNG | Yes | Malaysia | 2010 |
| | Senboku I | 2 | 90 000 | 5 | 2.9 | Osaka Gas | Osaka Gas | Yes | Indonesia, Malaysia, Australia, Qatar, Oman, Brunei, Russia | 1972 |
| | Senboku II | 18 | 1 585 000 | 15 | 15.7 | Osaka Gas | Osaka Gas | Yes | Indonesia, Malaysia, Australia, Qatar, Oman, Brunei, Russia | 1977 |
| | Shin-Minato | 1 | 80 000 | 3 | 0.4 | Gas Bureau, City of Sendai | Gas Bureau, City of Sendai | No | Malaysia | 1997 |
| | Sodegaura | 35 | 2 660 000 | 37 | 41.5 | Tokyo Gas / The Tokyo Electric | Tokyo Gas / The Tokyo Electric | Negotiated T.P.A. | Indonesia, Malaysia, Australia, Qatar, Brunei, Russia | 1973 |
| | Sodeshi | 3 | 337 200 | 8 | 3.9 | Shimizu LNG | Shimizu LNG | No | Malaysia, Australia, Nigeria, Russia | 1996 |
| | Tobata | 8 | 480 000 | 9 | 10.3 | Kita Kyushu LNG | Kita Kyushu LNG | Yes | Indonesia, Australia, Russia | 1977 |
| | Yanai | 6 | 480 000 | 5 | 3.1 | The Chugoku Electric | The Chugoku Electric | Yes | Australia, Qatar, Oman | 1990 |
| | Yokkaichi LNG Centre | 4 | 320 000 | 8 | 8.7 | Chubu Electric | Chubu Electric | Yes | Indonesia, Malaysia, Australia, Qatar, Russia | 1987 |
| | Yokkaichi Works | 2 | 160 000 | 6 | 2.9 | Toho Gas | Toho Gas | Negotiated T.P.A. | Indonesia, Australia, Qatar | 1991 |
| Malaysia | Melaka *(F) | | 260 000 | 3 | 5.2 | Petronas | Petronas Gas | No | Algeria, Brunei, Nigeria | 2013 |
| South Korea | Gwangyang | 4 | 530 000 | 2 | 2.3 | Posco | Posco | No | Indonesia | 2005 |
| | Incheon | 20 | 2 880 000 | 41 | 53.3 | KOGAS | KOGAS | No | Brunei, Indonesia, Malaysia, Nigeria, Oman, Qatar, Yemen | 1996 |
| | Pyeong-Taek | 23 | 3 360 000 | 34 | 44.5 | KOGAS | KOGAS | No | Brunei, Indonesia, Malaysia, Nigeria, Oman, Qatar, Yemen | 1986 |
| | Tong-Yeong | 17 | 2 620 000 | 17 | 27.5 | KOGAS | KOGAS | No | Indonesia, Malaysia, Nigeria, Oman, Qatar, Russia, Yemen | 2002 |
| Singapore | Jurong | 3 | 540 000 | 4 | 7.8 | SLNG | SLNG | No | Equatorial Guinea, Trinidad | 2013 |
| Taiwan | Taichung | 3 | 480 000 | 8 | 6.0 | CPC | CPC | No | Qatar | 2009 |
| | Yung-An | 6 | 690 000 | 18 | 12.8 | CPC | CPC | No | Equatorial Guinea, Indonesia, Malaysia, Nigeria, Qatar | 1990 |
| Thailand | Map Ta Phut | 2 | 320 000 | 4 | 7.3 | PTT | PTT LNG | No | Peru, Qatar, Yemen | 2011 |
| | | 298 | 33 843 200 | | 506.3 | | | | | |

*(F) : Floating

| Country | Site | Storage: Number of onshore tanks | Storage: Total capacity in liq m³ | Send-out: Number of vaporizers | Send-out: Nominal capacity in NG bcm/y | Owner | Operator | T.P.A. | Main source(s) of import | Start-up date |
|---|---|---|---|---|---|---|---|---|---|---|
| MIDDLE EAST | | | | | | | | | | |
| Dubai | Jebel Ali *(F) | | 125 850 | | 4.9 | Dubai Supply Authority | Golar | No | Qatar | 2010 |
| Israel | Hadera *(F) | | 138 000 | 6 | 4.8 | INGL | Excelerate Energy | No | Trinidad, Spain | 2013 |
| Kuwait | Mina Al Ahmadi *(F) (until end of 2013) | | 150 000 | | 5.2 | KPC | Excelerate Energy | No | Qatar | 2009 |
| | Mina Al Ahmadi *(F) - starting in 2014 | | 170 000 | | 7.9 | KPC | Golar | No | | 2014 |
| | | | 413 850 | | 14.9 | | | | | |
| EUROPE | | | | | | | | | | |
| Belgium | Zeebrugge | 4 | 380 000 | 12 | 9.0 | Fluxys LNG | Fluxys LNG | Yes | Qatar | 1987 |
| France | Fos-Cavaou | 3 | 330 000 | 4 | 8.3 | FosMax LNG (Elengy, Total) | Elengy | Yes | Algeria, Norway, Qatar, Yemen | 2009 (commercial operation from April 2010) |
| | Fos-sur-Mer | 3 | 150 000 | 12 | 5.5 | Elengy | Elengy | Yes | Algeria | 1972 |
| | Montoir-de-Bretagne | 3 | 360 000 | 11 | 10.0 | Elengy | Elengy | Yes | Algeria, Nigeria | 1980 |
| Greece | Revithoussa | 2 | 130 000 | 6 | 5.0 | DESFA S.A. | DESFA S.A. | Yes | Algeria | 2000 |
| Italy | Offshore Livorno *(F) | 4 | 103 125 | 3 | 4.1 | OLT (E.ON 46,8%, IREN Group 46,8%, other 6,42%) | ECOS (Exmar, Fratelli Cosulich) | | Spain | 2013 |
| | Panigaglia | 2 | 100 000 | 4 | 3.3 | GNL Italia S.p.A. | GNL Italia S.p.A. | Yes | Algeria | 1971 |
| | Rovigo *(F) | 2 | 250 000 | 5 | 8.0 | Qatar Petroleum (46%), Edison (7%), Exxon (46%) | Adriatic LNG (Qatar Petroleum, Edison, Exxon) | Yes (20%) | Qatar | 2009 |
| Netherlands | Gate LNG | 3 | 540 000 | 8 | 12.0 | Gasunie (47,5%), Vopak (47,5%), OMV (5%) | Gate LNG | Yes | Norway, Qatar | 2011 |
| Portugal | Sines | 3 | 390 000 | 7 | 7.6 | Ren Atlântico | Ren Atlântico | Yes | Nigeria, Qatar | 2004 |
| Spain | Barcelona | 6 | 760 000 | 13 | 17.1 | Enagas | Enagas | Regulated T.P.A. | Algeria, Egypt, Nigeria,Qatar, Trinidad & Tobago, Norway, Belgium, Peru, France | 1969 |
| | Bilbao | 2 | 300 000 | 4 | 7.0 | Enagas, Infrastructure Arzak 2, BV, EVE | Bahia de Bizkaia Gas, SL (BBG) | Regulated T.P.A. | Nigeria, Norway, Peru, Trinidad & Tobago & Qatar | 2003 |
| | Cartagena | 5 | 587 000 | 9 | 11.8 | Enagas | Enagas | Regulated T.P.A. | Algeria, Norway, Qatar, Oman, Peru, Trinidad & Tobago | 1989 |
| | Huelva | 5 | 619 500 | 9 | 11.8 | Enagas | Enagas | Regulated T.P.A. | Algeria, Nigeria, Norway, Peru, Qatar, Trinidad & Tobago | 1988 |
| | Mugardos | 2 | 300 000 | 3 | 3.6 | Gas Natural Fenosa, ENI, Autonomous Community of Galicia, Sonatrach, Tojeiro Group, First State Bank | Reganosa | Regulated T.P.A. | Nigeria, Trinidad & Tobago | 2007 |
| | Sagunto | 4 | 600 000 | 5 | 8.8 | ENI (21%) Gas Natural Fenosa (21%), Osaka Gas (20%), RREEF Alternative Investments (30%), Oman Oil (8%) | Saggas | Regulated T.P.A. | Algeria, Qatar | 2006 |
| Turkey | Aliaga/Izmir | 2 | 280 000 | 5 | 6.0 | Egegaz | Egegaz | No | Algeria, Qatar | 2006 |
| | Marmara Ereglisi | 3 | 255 000 | 7 | 6.2 | Botas | Botas | No | Algeria, Nigeria | 1994 |
| United-Kingdom | Dragon | 2 | 320 000 | 6 | 7.6 | BG Group (50%), Petronas (50%) | Dragon LNG | Yes (but no R.T.P.A.) | Norway, Trinidad | 2009 |
| | Isle of Grain | 8 | 1 000 000 | 14 | 20.5 | National Grid | Grain LNG | Yes (but no R.T.P.A.) | Algeria, Norway, Qatar | 2005 |
| | South Hook | 5 | 775 000 | 15 | 21.2 | Qatar Petroleum (68%), Exxon Mobil (24%), Total (8%) | South Hook LNG Terminal Company Ltd | Yes | Qatar | 2009 |
| | Teesside *(F) | | 138 000 | | 4.2 | Excelerate Energy | Excelerate Energy | | | 2007 |
| | | 73 | 8 667 625 | | 198.6 | | | | | |
| | Total World | 422 | 50 378 675 | | 974.0 | | | | | |

*(F) : Floating

# Long-term and medium-term contracts in force in 2013 (*)

| Export Country | Loading Point | Seller | Buyer | Nominal quantity ACQ $10^6$ t/year | Duration | Type of contract | Comments |
|---|---|---|---|---|---|---|---|
| **ATLANTIC BASIN** | | | | | | | |
| **Algeria** | Skikda-Bethioua | Sonatrach | GDF SUEZ | 3.7 | 1976/2013 | F.O.B. | Extension to 2019 |
| | | | GDF SUEZ | 2.5 | 1972/2013 | F.O.B. | Extension to 2019 |
| | | | GDF SUEZ | 1.3 | 1992/2013 | F.O.B. | Extension to 2019 |
| | | | Eni | 1.33 | 1997/2017 | F.O.B. | |
| | | | Iberdrola | 1.15 | 2002/2021 | D.E.S. | |
| | | | Botas | 3.02 | 1994/2014 | D.E.S. | |
| | | | Enel | 0.08 | 1999/2022 | D.E.S. | Part of GDF SUEZ/Enel swap |
| | | | Cepsa | 0.77 | 2002/2022 | D.E.S. | |
| | | | Statoil | 0.75 | 2003/2009 | D.E.S. | Extension to 2014 |
| | | | Endesa | 0.75 | 2002/2017 | D.E.S. | |
| | | | DEPA S.A. | 0.5 | 2000/2021 | C.I.F. | |
| **Egypt** | Idku | ELNG T1 | GDF SUEZ | 3.6 | 2005/2025 | F.O.B. | |
| | | ELNG T2 | BGGM | 3.6 | 2005/2025 | F.O.B. | |
| | Damietta | SEGAS | BP | 1 | 2005/2025 | F.O.B. | |
| | | SEGAS | Union Fenosa gas | 3.3 | 2005/2030 | F.O.B. | |
| **Equatorial Guinea** | Punta Europa | EGLNG | BGGM | 3.4 | 2007/2023 | F.O.B. | |
| **Nigeria** | Bonny Island | Nigeria LNG T1 & 2 | Enel | 2.69 | 1999/2022 | D.E.S. | GDF SUEZ/Enel swap. Part of these volumes are delivered to terminals outside Europe. |
| | | | Gas Natural Aprovisionamientos | 1.17 | 1999/2021 | D.E.S. | |
| | | | Botas | 0.91 | 1999/2021 | D.E.S. | |
| | | | GDF SUEZ | 0.33 | 1999/2022 | D.E.S. | |
| | | | Galp Energia | 0.26 | 1999/2022 | D.E.S. | |
| | | Nigeria LNG T3 | Gas Natural sdg | 1.99 | 2002/2024 | D.E.S. | |
| | | | Galp Energia | 0.73 | 2002/2022 | D.E.S. | |
| | | Nigeria LNG T4 | Eni | 1.15 | 2006/2026 | D.E.S. | |
| | | | Iberdrola | 0.38 | 2006/2026 | D.E.S. | |
| | | Nigeria LNG T4 & 5 | BGLS | 2.3 | 2006/2026 | D.E.S. | |
| | | | Galp Energia | 1.42 | 2006/2026 | D.E.S. | |
| | | | Shell Western LNG | 1.13 | 2006/2026 | D.E.S. | |
| | | | Endesa | 0.75 | 2006/2026 | D.E.S. | |
| | | | Total | 0.23 | 2006/2026 | D.E.S. | |
| | | Nigeria LNG T6 | Total | 0.9 | 2008/2027 | D.E.S. | |
| | | | Shell Western LNG | 3.1 | 2008/2027 | D.E.S. | |
| **Norway** | Hammerfest | Statoil | Statoil | ~1.75 | 2007/2021 | D.E.S. | |
| | | | Iberdrola | 1.13 | 2006/2025 | D.E.S. | |
| | | Total | Total | 0.7 | 2007/depletion | F.O.B. | |
| | | GDF SUEZ | GDF SUEZ | 0.5 | 2007/depletion | F.O.B. | |
| | | Statoil | Petronas | 0.1 | 2012/depletion | F.O.B. | |
| **Trinidad & Tobago** | Point Fortin | Atlantic LNG T1 | GDF SUEZ | 1.98 | 1999/2018 | F.O.B. | |
| | | | Gas Natural Aprovisionamientos | 1.06 | 1999/2018 | F.O.B. | |
| | | Atlantic LNG T2 & 3 | BG | 2.63 | 2004/2024 | F.O.B. | |
| | | | Repsol | 2.05 | 2006/2023 | F.O.B. | |
| | | | BP Gas Marketing | 0.85 | 2002/2021 | F.O.B. | |
| | | | Naturgas Energia | 0.7 | 2003/2023 | F.O.B. | |
| | | | Gas Natural sdg | 0.65 | 2002/2023 | F.O.B. | |
| | | Atlantic LNG T4 | BP | 2.5 | 2006/2025 | F.O.B. | |
| | | | BG | 1.5 | 2006/2025 | F.O.B. | |
| | | | Repsol | 1.15 | 2009/2027 | D.E.S. | |
| | | BP | AES | 0.75 | 2003/2023 | D.E.S. | Related to BP/ALNG T2 & 3 contract |
| | | GDF SUEZ | Ecoelectrica | 0.6 | 2000/2020 | D.E.S. | Related to GDF SUEZ/ALNG T1 contract |

(*) Duration above four years

| Export Country | Loading Point | Seller | Buyer | Nominal quantity ACQ $10^6$ t/year | Duration | Type of contract | Comments |
|---|---|---|---|---|---|---|---|
| **PACIFIC BASIN** | | | | | | | |
| **Australia** | Withnell Bay | Woodside, Shell, BHP Billiton, BP, Chevron , Japan Australia LNG Pty Ltd (Mitsubishi & Mitsui) | The Chugoku Electric | 1.43 | 2009/2021 | D.E.S. | |
| | | | Tokyo Gas, Toho Gas | 1.37 | 2004/2029 | F.O.B. | |
| | | | Kyushu Electric | 1.05 | 2009/2023 | F.O.B. | |
| | | | Osaka Gas | 1 | 2004/2033 | F.O.B. | |
| | | | Tohoku Electric | 1 | 2010/2019 | D.E.S. | |
| | | | Toho Gas | 0.76 | 2009/2019 | D.E.S. | |
| | | | Chubu Electric | 0.6 | 2009/2029 | D.E.S. | |
| | | | Tokyo Gas | 0.5 | 2009/2017 | D.E.S. | |
| | | | Osaka Gas | 0.5 | 2009/2015 | D.E.S. | |
| | | | The Kansai Electric | 0.5-0.93 | 2009/2024 | D.E.S. | |
| | | | Chubu Electric | 0.5 | 2009/2016 | D.E.S. | |
| | | | The Kansai Electric | 0.2-0.44 | 2009/2017 | D.E.S. | |
| | | | The Tokyo Electric Power co. | 0.3 | 2009/2017 | D.E.S. | |
| | | | Kyushu Electric | 0.18 | 2006/2021 | D.E.S. | |
| | | | Shizuoka Gas | 0.13 | 2004/2029 | F.O.B. | |
| | | | KOGAS | 0.5 | 2003/2016 | D.E.S. | |
| | | | GDLNG | 3.3 | 2006/2030 | F.O.B. | |
| | Darwin | Conocophillips, ENI, Santos, Inpex,TTSR | Tokyo Electric | 2 | 2006/2022 | F.O.B. | |
| | | | Tokyo Gas | 1 | 2006/2022 | F.O.B. | |
| | Pluto | Pluto LNG | The Kansai Electric | 1.75-2 | 2011/2025 | F.O.B. | |
| | | Pluto LNG | Tokyo Gas | 1.5-1.75 | 2011/2025 | F.O.B. | |
| **Brunei** | Lumut | Brunei LNG | Tokyo Gas,Osaka Gas, The Tokyo Electric Power co. | 3.4 | 2013/2023 | D.E.S. | Extended to 2023 |
| | | | KOGAS | 1 | 1997/2018 | D.E.S. | |
| | | | Shell | 0.8 | 2013/2023 | F.O.B. | |
| **Indonesia** | Bontang | Pertamina, Total E&P Indonesia, INPEX | The Kansai Electric, Chubu Electric, Kyushu Electric, Osaka Gas, Toho Gas, Nippon Steel & Sumitomo Metal | 3 | 2011/2020 | F.O.B./D.E.S. | Nominal quantity (ACQ) 2011/2015: 3 mmtpa; 2016/2020: 2 mmtpa |
| | | | Osaka Gas, Tokyo Gas, Toho Gas | 2.3 | 1994/2013 | D.E.S. | |
| | | | Hiroshima Gas, Nippon Gas, Osaka Gas | 0.39 | 1996/2015 | D.E.S. | |
| | | | KOGAS | 2 | 1994/2014 | F.O.B. | |
| | | | KOGAS | 1 | 1998/2017 | F.O.B. | |
| | | | CPC | 1.84 | 1998/2017 | D.E.S. | |
| | Tangguh | Tangguh PSC Contractor Parties | Sempra LNG | 3.7 | 2008/2029 | D.E.S. | 1.7 mmtpa divertible |
| | | | CNOOC | 2.6 | 2009/2033 | F.O.B. | |
| | | | SK | 0.6 | 2006/2026 | D.E.S. | |
| | | | Posco | 0.55 | 2005/2024 | D.E.S. | |
| | | | Tohoku Electric | 0.12 | 2010/2024 | D.E.S. | |
| **Malaysia** | Bintulu | Malaysia LNG Satu | Tokyo Gas, The Tokyo Electric Power co. | 7.4 | 1983/2003 | 1.8 mmtpa F.O.B./ 5.6 mmtpa D.E.S. | Extended to 2018 |
| | | | Saibu Gas | 0.39 | 1993/2013 | D.E.S. | Extended to 2028 |
| | | | Shikoku Electric | 0.36 | 2010/2025 | D.E.S. | |
| | | | Hiroshima Gas | 0.008-0.016 | 2005/2012 | F.O.B. | Extended to 2015 |
| | | Malaysia LNG Dua | The Kansai Electric, Toho Gas, Tokyo Gas, Osaka Gas | 2.1 | 1995/2015 | D.E.S. | |
| | | | Gas Bureau, City of Sendai | 0.15 | 1997/2016 | D.E.S. | |
| | | | Chubu Electric | ~0.54 | 2011/2031 | D.E.S. | |
| | | | Tohoku Electric | 0.5 | 1996/2016 | D.E.S. | |
| | | | Shizuoka Gas | 0.45 | 1996/2016 | D.E.S. | |
| | | | KOGAS | 1.0-2.0 | 1995/2018 | F.O.B. | |
| | | | CPC | 2.25 | 1995/2015 | D.E.S. | |

## Long-term and medium-term contracts in force in 2013 (*) (cont'd.)

| Export Country | Loading Point | Seller | Buyer | Nominal quantity ACQ $10^6$ t/year | Duration | Type of contract | Comments |
|---|---|---|---|---|---|---|---|
| Malaysia | Bintulu | Malaysia LNG Tiga | Tokyo Gas, Toho Gas, Osaka Gas | 0.68 | 2004/2024 | D.E.S. | |
| | | | Toho Gas | 0.52 | 2007/2027 | D.E.S. | |
| | | | Tohoku Electric | 0.5 | 2005/2025 | D.E.S. | |
| | | | Japan Petroleum Exploration co. | 0.48 | 2002/2021 | D.E.S. | |
| | | | CNOOC | 3 | 2009/2029 | D.E.S. | |
| | | | KOGAS | 2 | 2008/2028 | D.E.S. | |
| Russia | Prigorodnoye | Sakhalin Energy Investment | The Tokyo Electric Power co. | 1.5 | 2007/2029 | F.O.B. | |
| | | | Tokyo Gas | 1.1 | 2007/2031 | F.O.B. | |
| | | | Kyushu Electric | 0.5 | 2009/2031 | D.E.S. | |
| | | | Toho Gas | 0.5 | 2009/2033 | D.E.S. | |
| | | | Chubu Electric | 0.5 | 2011/2026 | D.E.S. | |
| | | | Tohoku Electric | 0.42 | 2010/2030 | F.O.B. | |
| | | | Hiroshima Gas | 0.21 | 2008/2028 | F.O.B. | |
| | | | Osaka Gas | 0.2 | 2008/2031 | F.O.B. | |
| | | | Saibu Gas | 0.008 | 2010/2028 | F.O.B. | |
| | | | KOGAS | 1.5 | 2008/2028 | F.O.B. | |
| | | | Shell | 1.6 | 2009/2028 | D.E.S. | Initially linked to Costa Azul / Destination flexible |
| | | | Gazprom Global LNG | 1 | 2009/2028 | D.E.S. | |
| **MIDDLE EAST** | | | | | | | |
| Abu Dhabi | Das Island | Adgas | The Tokyo Electric Power co. | 4.7 | 1994/2019 | D.E.S. | |
| Qatar | Ras Laffan | Qatargas I | Chubu Electric | 4 | 1997/2021 | D.E.S. | |
| | | | Tohoku Electric, Tokyo Gas, Osaka Gas, The Kansai Electric, The Tokyo Electric Power co., Toho Gas, The Chugoku Electric | 2 | 1998/2021 | D.E.S. | |
| | | | Gas Natural sdg | 0.75 | 2005/2024 | D.E.S. | |
| | | | Gas Natural sdg | 0.75 | 2006/2025 | F.O.B. | |
| | | | The Tokyo Electric Power co. | 1 | 2012/2021 | D.E.S. | |
| | | Qatargas II T1 | ExxonMobil | 7.8 | 2009/2034 | D.E.S. | |
| | | Qatargas II T2 | CNOOC | 2 | 2009/2034 | D.E.S. | |
| | | | Total | 1.85 | 2009/2034 | D.E.S. | |
| | | | Total | 1.5 | 2009/2034 | D.E.S. | |
| | | | Total | 1.15 | 2009/2034 | D.E.S. | |
| | | | Total | 0.7 | 2009/2034 | D.E.S. | |
| | | | ExxonMobil | 0.6 | 2009/2033 | D.E.S. | |
| | | Qatargas III | ConocoPhillips | 7.8 | 2010/2035 | D.E.S. | |
| | | | Chubu Electric | 1 | 2013/2028 | D.E.S. | Nominal quantity (ACQ) 2013/2017 : 1 mmtpa; 2018/2028 : 0.7 mmtpa |
| | | | The Kansai Electric | 0.5 | 2013/2027 | D.E.S. | |
| | | Qatargas IV | Shell | 3.8 | 2011/2041 | D.E.S. | |
| | | | Petrochina | 3 | 2011/2036 | D.E.S. | |
| | | | Marubeni | 1 | 2011/2031 | D.E.S. | |
| | | RasGas I | KOGAS | 4.92 | 1999/2024 | F.O.B. | |
| | | RasGas II T1 | Petronet LNG | 5 | 2004/2028 | F.O.B. | |
| | | RasGas II T2 | Edison | 4.6 | 2009/2034 | D.E.S. | |
| | | | Endesa | 0.74 | 2005/2025 | D.E.S. | |
| | | RasGas II T3 | EDF Trading | 3.4 | 2007/2012 | D.E.S. | Extended to 2027 |
| | | | CPC | 3.08 | 2008/2032 | F.O.B. | |
| | | | ENI | 2.05 | 2007/2027 | D.E.S. | Former Distrigas contract |

(*) Duration above four years

| Export Country | Loading Point | Seller | Buyer | Nominal quantity ACQ $10^6$ t/year | Duration | Type of contract | Comments |
|---|---|---|---|---|---|---|---|
| Qatar | Ras Laffan | RasGas III T1 | ExxonMobil | 7.8 | 2009/2034 | D.E.S. | |
| | | | Petronet LNG | 2.5 | 2009/2029 | F.O.B. | |
| | | | KOGAS | 2.1 | 2007/2026 | D.E.S. | |
| | | | KOGAS | 2 | 2012/2032 | D.E.S. | New LT contract |
| | | RasGas III T2 | ExxonMobil | 7.8 | 2010/2035 | D.E.S. | |
| | | RasGas III | CPC | 1.50 | 2013/2032 | D.E.S. | |
| Oman | Qalhat | Oman LNG | KOGAS | 4.06 | 2000/2024 | F.O.B. | |
| | | | Osaka Gas | 0.66 | 2000/2024 | F.O.B. | |
| | | Qalhat LNG | Union Fenosa Gas | 1.65 | 2006/2025 | D.E.S. | |
| | | | Mitsubishi Corp. | 0.8 | 2006/2020 | F.O.B. | |
| | | | Osaka Gas | 0.8 | 2009/2026 | F.O.B. | |
| | | | Itochu Corp. | 0.77 | 2006/2020 | F.O.B. | |
| Yemen | Balhaf | Yemen LNG T1 | KOGAS | 2 | 2008/2028 | F.O.B. | |
| | | Yemen LNG T2 | GDF SUEZ | 2.55 | 2009/2029 | F.O.B. | |
| | | Yemen LNG T1 & 2 | TGPL | 2 | 2009/2029 | D.E.S. | |
| **OTHER** | | | | | | | |
| BG Portfolio | | BG | KOGAS | 1.3 | 2008/2016 | D.E.S. | |
| BG Portfolio | | BG | Quintero LNG | 3 | 2009/2030 | D.E.S. | |
| BG Portfolio | | BG | Singapore LNG | 3 | 2013/2033 | D.E.S. | |
| BP Portfolio | | BP | Chubu Electric | 0.5 | 2012/2028 | D.E.S. | |
| Chubu Electric Portfolio | | Chubu Electric | Inpex | * | 2013-2018 | | *Total quantity of LNG during contract duration : 17 cargoes (approx. 1 mmtpa) |
| Eni Portfolio | | Eni | Iberdrola | 0.92 | 2002/2018 | D.E.S. | |
| Eni Portfolio | | Eni | Hidrocantabrico + EDP | 0.36 | 2005/2016 | D.E.S. | |
| Eni Portfolio | | Eni | E.On Espana | 0.65 | 2007/2022 | D.E.S. | |
| Eni Portfolio | | Eni | The Tokyo Electric Power Co. | 1.04 | 2011/2015 | D.E.S. | |
| Eni Portfolio | | Eni | KOGAS/Chubu Electric | * | 2013/2017 | D.E.S. | *Total quantity of LNG during the contract duration: 28 cargoes (approx. 1.68mmtpa) |
| Iberdrola Portfolio | | Iberdrola | DONG | 0.72 | 2011/2021 | D.E.S. | |
| Mitsubishi | | Mitsubishi Corp. | Shizuoka Gas | 0.3-0.7 | 2010/2015 | D.E.S. | |
| Shell Portfolio | | Shell Eastern Trading | Osaka Gas | ~0.8 | 2012/2038 | D.E.S. | |
| Shell Portfolio | | Shell Eastern Trading | KOGAS | 1.0-3.64 | 2013/2035 | D.E.S. | |
| Tokyo Gas Portfolio | | Tokyo Gas | Hokkaido Gas | 0.3-0.4 | 2012/2023 | D.E.S. | |
| Total Portfolio | | Total Gas and Power | CNOOC | 1 | 2010/2024 | D.E.S. | |

# Sea transportation routes

| Trade | Loading point | Unloading point | Nautical miles |
|---|---|---|---|
| AE-JP | Das Island | Futtsu | 6 485 |
| AE-JP | Das Island | Higashi Ohgishima | 6 491 |
| AO-BR | Soyo | Guanabara Bay | 3 395 |
| AO-CN | Soyo | Fujian | 9 108 |
| AO-IN | Soyo | Incheon | 9 964 |
| AO-JP | Soyo | Futtsu | 10 285 |
| AU-CN | Dampier | Dapeng, Shenzhen | 2 745 |
| AU-JP | Dampier | Chita | 3 612 |
| AU-JP | Dampier | Futtsu | 3 734 |
| AU-JP | Dampier | Higashi Ohgishima | 3 738 |
| AU-JP | Dampier | Himeji | 3 596 |
| AU-JP | Dampier | Ishikari | 4 279 |
| AU-JP | Dampier | Kagoshima | 3 334 |
| AU-JP | Dampier | Kawagoe | 3 622 |
| AU-JP | Dampier | Mizushima | 3 638 |
| AU-JP | Dampier | Naha | 3 288 |
| AU-JP | Dampier | Negishi | 3 664 |
| AU-JP | Dampier | Niigata | 3 995 |
| AU-JP | Dampier | Oita | 3 460 |
| AU-JP | Dampier | Sakaï | 3 570 |
| AU-JP | Dampier | Senboku | 3 570 |
| AU-JP | Dampier | Sodegaura | 3 692 |
| AU-JP | Dampier | Tobata | 3 585 |
| AU-JP | Dampier | Yanai | 3 491 |
| AU-JP | Dampier | Yokkaichi | 3 668 |
| AU-JP | Darwin | Futtsu | 3 203 |
| AU-JP | Darwin | Higashi Ohgishima | 3 067 |
| AU-JP | Darwin | Negishi | 3 017 |
| AU-JP | Darwin | Sodegaura | 3 212 |
| AU-KR | Dampier | InCheon | 3 613 |
| AU-KR | Dampier | Pyeong-Taek | 3 613 |
| AU-KR | Withnell Bay | Pyeong-Taek | 3 608 |
| AU-KW | Dampier | Mina Al Ahmadi | 5 041 |
| BI-IN | Lumut | Dahej | 2 356 |
| BI-JP | Lumut | Chita | 3 088 |
| BI-JP | Lumut | Futtsu | 3 183 |
| BI-JP | Lumut | Higashi Ohgishima | 3 195 |
| BI-JP | Lumut | Himeji | 3 019 |
| BI-JP | Lumut | Minami Yokohama | 3 193 |
| BI-JP | Lumut | Mizushima | 2 986 |
| BI-JP | Lumut | Senboku | 3 007 |
| BI-JP | Lumut | Shimizu | 3 128 |
| BI-JP | Lumut | Tobata | 2 828 |
| BI-KR | Lumut | Incheon | 2 862 |
| BI-KR | Lumut | Pyeong-Taek | 2 862 |

| Trade | Loading point | Unloading point | Nautical miles |
|---|---|---|---|
| BI-KR | Lumut | Tong-Yeong | 2 763 |
| BI-MY | Lumut | Melaka | 182 |
| DZ-BR | Bethioua | Guanabara Bay | 4 486 |
| DZ-CN | Arzew | Jiangsu Rudong | 9 078 |
| DZ-DU | Bethioua | Jebel Ali | 4 640 |
| DZ-F | Arzew | Fos Cavaou | 523 |
| DZ-F | Bethioua | Fos Cavaou | 520 |
| DZ-F | Bethioua | Fos Tonkin | 524 |
| DZ-F | Skikda | Fos Cavaou | 406 |
| DZ-F | Skikda | Fos Tonkin | 406 |
| DZ-F | Bethioua | Montoir de Bretagne | 1 245 |
| DZ-GR | Bethioua | Revithoussa | 1 266 |
| DZ-GR | Skikda | Revithoussa | 910 |
| DZ-I | Bethioua | Panigaglia | 684 |
| DZ-I | Bethioua | Panigaglia | 685 |
| DZ-IN | Bethioua | Dabhol | 4 737 |
| DZ-IN | Bethioua | Dahej | 4 766 |
| DZ-JP | Arzew | Oita | 9 350 |
| DZ-JP | Bethioua | Chita | 9 558 |
| DZ-JP | Bethioua | Joetsu | 9 720 |
| DZ-JP | Bethioua | Niigata | 9 758 |
| DZ-KR | Skikda | Pyeong-Taek | 8 976 |
| DZ-KR | Skikda | Tong-Yeong | 8 877 |
| DZ-MY | Bethioua | Melaka | 6 654 |
| DZ-P | Bethioua | Sines | 520 |
| DZ-SP | Bethioua | Barcelona | 352 |
| DZ-SP | Bethioua | Huelva | 391 |
| DZ-SP | Bethioua | Sagunto | 243 |
| DZ-SP | Skikda | Barcelona | 351 |
| DZ-SP | Skikda | Huelva | 732 |
| DZ-SP | Bethioua | Cartagena | 113 |
| DZ-UK | Bethioua | Isle of Grain | 1 590 |
| EG-BR | Idku | Guanabara Bay | 6 046 |
| EG-CN | Idku | Dapeng, Shenzhen | 6 709 |
| EG-CN | Idku | Fujian | 6 948 |
| EG-CN | Idku | Jiangsu Rudong | 7 550 |
| EG-DU | Idku | Jebel Ali | 3 112 |
| EG-IN | Idku | Dahej | 3 238 |
| EG-IN | Idku | Hazira | 3 225 |
| EG-JP | Idku | Chita | 8 029 |
| EG-JP | Idku | Himeji | 7 960 |
| EG-JP | Idku | Kawagoe | 8 028 |
| EG-JP | Idku | Niigata | 8 230 |
| EG-JP | Idku | Sakaï | 7 949 |
| EG-JP | Idku | Tobata | 7 770 |

| Trade | Loading point | Unloading point | Nautical miles |
|---|---|---|---|
| EG-JP | Idku | Sodeshi | 8 070 |
| EG-KR | Idku | InCheon | 7 804 |
| EG-KR | Idku | Pyeong-Taek | 7 804 |
| EG-KR | Idku | Tong-Yeong | 7 705 |
| EG-MY | Idku | Melaka | 5 125 |
| EG-P | Idku | Sines | 2 416 |
| EG-SP | Idku | Barcelona | 1 491 |
| EG-TW | Idku | Yung-An | 6 863 |
| EQG-CN | Punta Europa | Dalian | 10 650 |
| EQG-CN | Punta Europa | Dapeng, Shenzhen | 9 474 |
| EQG-CN | Punta Europa | Jiangsu Rudong | 10 315 |
| EQG-CN | Punta Europa | Tangshan | 10 752 |
| EqG-JP | Punta Europa | Futtsu | 10 890 |
| EqG-JP | Punta Europa | Higashi Ohgishima | 10 903 |
| EqG-JP | Punta Europa | Himeji | 10 724 |
| EqG-JP | Punta Europa | Negishi | 10 897 |
| EqG-JP | Punta Europa | Niigata | 10 995 |
| EqG-JP | Punta Europa | Oita | 10 585 |
| EqG-JP | Punta Europa | Sakai | 10 712 |
| EqG-JP | Punta Europa | Tobata | 10 535 |
| EqG-JP | Punta Europa | Chita | 10 795 |
| EqG-KR | Punta Europa | InCheon | 10 570 |
| EQG-SG | Punta Europa | Jurong Island | 8 002 |
| EqG-TH | Punta Europa | Map Ta Phut | 8 752 |
| EqG-TW | Punta Europa | Yung-An | 9 629 |
| ID-CN | Tangguh | Fujian | 1 990 |
| ID-JP | Bontang | Chita | 2 466 |
| ID-JP | Bontang | Hatsukaichi | 2 412 |
| ID-JP | Bontang | Himeji | 2 451 |
| ID-JP | Bontang | Kagoshima | 2 186 |
| ID-JP | Bontang | Senboku | 2 439 |
| ID-JP | Bontang | Sodegaura | 2 566 |
| ID-JP | Tangguh | Futtsu | 2 479 |
| ID-JP | Tangguh | Niigata | 2 894 |
| ID-JP | Bontang | Higashi Ohgishima | 2 570 |
| ID-JP | Bontang | Kawagoe | 2 464 |
| ID-JP | Bontang | Tobata | 2 333 |
| ID-JP | Bontang | Yokkaichi | 2 510 |
| ID-JP | Tangguh | Himeji | 2 410 |
| ID-JP | Tangguh | Joetsu | 2 856 |
| ID-JP | Tangguh | Naoetsu | 2 856 |
| ID-JP | Tangguh | Oita | 2 320 |
| ID-JP | Tangguh | Sakai | 2 398 |
| ID-KR | Blang Lancang | InCheon | 3 053 |
| ID-KR | Bontang | Incheon | 2 394 |

| Trade | Loading point | Unloading point | Nautical miles |
|---|---|---|---|
| ID-KR | Tangguh | Incheon | 2 624 |
| ID-KR | Tangguh | Pyeong-Taek | 2 624 |
| ID-KR | Blang Lancang | Pyeong-Taek | 3 052 |
| ID-KR | Bontang | Pyeong-Taek | 2 393 |
| ID-MEX | Tangguh | Energia Costa Azul | 6 795 |
| MY-CN | Bintulu | Shanghai | 1 897 |
| MY-JP | Bintulu | Himeji | 2 400 |
| MY-JP | Bintulu | Negishi | 2 513 |
| MY-JP | Bintulu | Niigata | 2 511 |
| MY-JP | Bintulu | Sodegaura | 2 515 |
| MY-JP | Bintulu | Chita | 2 395 |
| MY-JP | Bintulu | Futtsu | 2 505 |
| MY-JP | Bintulu | Hakata | 2 503 |
| MY-JP | Bintulu | Higashi Ohgishima | 2 530 |
| MY-JP | Bintulu | Nagasaki | 2 041 |
| MY-JP | Bintulu | Oita | 2 490 |
| MY-JP | Bintulu | Sakaï | 2 317 |
| MY-JP | Bintulu | Senboku | 2 318 |
| MY-JP | Bintulu | Sendai | 2 726 |
| MY-JP | Bintulu | Sodeshi | 2 437 |
| MY-JP | Bintulu | Tobata | 2 164 |
| MY-KR | Bintulu | InCheon | 2 233 |
| MY-KR | Bintulu | Tong-Yeong | 2 115 |
| MY-KR | Bintulu | Pyeong-Taek | 2 233 |
| NIG- KR | Bonny Island | Tong-Yeong | 10 502 |
| NIG-ARG | Bonny Island | Escobar | 4 432 |
| NIG-BR | Bonny Island | Pecem | 2 811 |
| NIG-BR | Bonny Island | Guanabara Bay | 3 422 |
| NIG-CN | Bonny Island | Jiangsu Rudong | 9 459 |
| NIG-CN | Bonny Island | Dalian | 10 682 |
| NIG-CN | Bonny Island | Dapeng, Shenzhen | 9 506 |
| NIG-F | Bonny Island | Montoir de Bretagne | 4 019 |
| NIG-GR | Bonny Island | Revithoussa | 4 899 |
| NIG-IN | Bonny Island | Dabhol | 7 045 |
| NIG-IN | Bonny Island | Dahej | 7 246 |
| NIG-ISR | Bonny Island | Hadera Gateway | 5 354 |
| NIG-JP | Bonny Island | Futtsu | 10 966 |
| NIG-JP | Bonny Island | Higashi Ohgishima | 10 934 |
| NIG-JP | Bonny Island | Kawagoe | 10 825 |
| NIG-JP | Bonny Island | Mizushima | 10 743 |
| NIG-JP | Bonny Island | Negishi | 10 965 |
| NIG-JP | Bonny Island | Niigata | 11 067 |
| NIG-JP | Bonny Island | Shimizu | 10 867 |
| NIG-JP | Bonny Island | Tobata | 10 567 |
| NIG-JP | Bonny Island | Chita | 10 850 |

# Sea transportation routes (cont'd.)

| Trade | Loading point | Unloading point | Nautical miles |
|---|---|---|---|
| NIG-JP | Bonny Island | Himeji | 10 790 |
| NIG-JP | Bonny Island | Joetsu | 11 167 |
| NIG-JP | Bonny Island | Oita | 10 626 |
| NIG-JP | Bonny Island | Sakaï | 10 743 |
| NIG-JP | Bonny Island | Senboku | 10 744 |
| NIG-JP | Bonny Island | Sodeshi | 10 867 |
| NIG-JP | Bonny Island | Tobata | 10 567 |
| NIG-JP | Bonny Island | Yanai | 10 638 |
| NIG-KR | Bonny Island | InCheon | 10 601 |
| NIG-KR | Bonny Island | Pyeong-Taek | 10 601 |
| NIG-KW | Bonny Island | Mina Al Ahmadi | 7 588 |
| NIG-MEX | Bonny Island | Manzanillo | 7 708 |
| NIG-MEX | Bonny Island | Altamira | 6 260 |
| NIG-MY | Bonny Island | Melaka | 7 896 |
| NIG-P | Bonny Island | Sines | 3 339 |
| NIG-PR | Bonny Island | Penuelas | 4 498 |
| NIG-SP | Bonny Island | El Ferrol | 3 745 |
| NIG-SP | Bonny Island | Barcelona | 3 868 |
| NIG-SP | Bonny Island | Bilbao | 3 925 |
| NIG-SP | Bonny Island | Huelva | 3 359 |
| NIG-SP | Bonny Island | Sagunto | 3 749 |
| NIG-TH | Bonny Island | Map Ta Phut | 8 708 |
| NIG-TW | Bonny Island | Yung-An | 9 660 |
| NIG-US | Bonny Island | Cove Point | 5 223 |
| NO-BR | Hammerfest | Guanabara Bay | 6 404 |
| NO-BR | Hammerfest | Pecem | 5 145 |
| NO-F | Hammerfest | Fos Cavaou | 3 305 |
| NO-F | Hammerfest | Montoir de Bretagne | 1 894 |
| NO-IN | Hammerfest | Dahej | 7 612 |
| NO-JP | Hammerfest | Futtsu | 12 500 |
| NO-JP | Hammerfest | Higashi Ohgishima | 12 512 |
| NO-JP | Hammerfest | Oita | 12 197 |
| NO-KR | Hammerfest | Incheon | 12 179 |
| NO-MEX | Hammerfest | Altamira | 5 579 |
| NO-MY | Hammerfest | Melaka | 9 500 |
| NO-ND | Hammerfest | Rotterdam | 1 341 |
| NO-P | Hammerfest | Sines | 2 436 |
| NO-SP | Hammerfest | Barcelona | 3 155 |
| NO-SP | Hammerfest | Bilbao | 2 044 |
| NO-SP | Hammerfest | Cartagena | 2 855 |
| NO-SP | Hammerfest | El Ferrol | 2 054 |
| NO-SP | Hammerfest | Huelva | 2 609 |
| NO-SP | Hammerfest | Sagunto | 3 015 |
| NO-UK | Hammerfest | Dragon | 1 527 |
| NO-UK | Hammerfest | Isle of Grain | 1 372 |

| Trade | Loading point | Unloading point | Nautical miles |
|---|---|---|---|
| NO-US | Hammerfest | Freeport | 5 470 |
| OM-JP | Qalhat | Futtsu | 5 976 |
| OM-JP | Qalhat | Higashi Ohgishima | 5 988 |
| OM-JP | Qalhat | Himeji | 5 812 |
| OM-JP | Qalhat | Mizushima | 5 779 |
| OM-JP | Qalhat | Yanai | 5 695 |
| OM-KR | Qalhat | InCheon | 5 655 |
| OM-KR | Qalhat | Pyeong-Taek | 5 655 |
| OM-KR | Qalhat | Tong-Yeong | 5 556 |
| OM-SP | Qalhat | Cartagena | 4 242 |
| OM-SP | Qalhat | Sagunto | 4 210 |
| PU-JP | Pampa Melchorita | Kawagoe | 8 658 |
| PU-JP | Pampa Melchorita | Mizushima | 8 876 |
| PU-JP | Pampa Melchorita | Niigata | 8 491 |
| PU-JP | Pampa Melchorita | Oita | 8 940 |
| PU-KR | Pampa Melchorita | Incheon | 9 340 |
| PU-KR | Pampa Melchorita | Pyeong-Taek | 9 340 |
| PU-KR | Pampa Melchorita | Tong-Yeong | 8 983 |
| PU-MEX | Pampa Melchorita | Altamira | 10 324 |
| PU-MEX | Pampa Melchorita | Manzanillo | 2 557 |
| PU-SP | Pampa Melchorita | Barcelona | 9 664 |
| PU-SP | Pampa Melchorita | Bilbao | 9 707 |
| PU-SP | Pampa Melchorita | Cartagena | 9 386 |
| PU-SP | Pampa Melchorita | El Ferrol | 9 474 |
| PU-SP | Pampa Melchorita | Huelva | 9 154 |
| Q- IN | Ras Laffan | Dahej | 1 280 |
| Q-ARG | Ras Laffan | Bahia Blanca | 9 054 |
| Q-ARG | Ras Laffan | Escobar | 8 969 |
| Q-BR | Ras Laffan | Guanabara Bay | 8 499 |
| Q-BR | Ras Laffan | Pecem | 8 040 |
| Q-CA | Ras Laffan | Canaport | 7 981 |
| Q-CN | Ras Laffan | Dalian | 6 313 |
| Q-CN | Ras Laffan | Dapeng, Shenzhen | 5 137 |
| Q-CN | Ras Laffan | Fujian | 5 376 |
| Q-CN | Ras Laffan | Jiangsu Rudong | 5 978 |
| Q-CN | Ras Laffan | Tangshan | 6 360 |
| Q-CN | Ras Laffan | Zhuhai | 5 054 |
| Q-DU | Ras Laffan | Jebel Ali | 197 |
| Q-F | Ras Laffan | Fos Cavaou | 4 684 |
| Q-I | Ras Laffan | Porto Levante | 4 399 |
| Q-IN | Ras Laffan | Hazira | 1 267 |
| Q-IN | Ras Laffan | Kochi | 1 782 |
| Q-JP | Ras Laffan | Chita | 6 458 |
| Q-JP | Ras Laffan | Futtsu | 6 553 |
| Q-JP | Ras Laffan | Higashi Ohgishima | 6 566 |

| Trade | Loading point | Unloading point | Nautical miles |
|---|---|---|---|
| Q-JP | Ras Laffan | Joetsu | 6 620 |
| Q-JP | Ras Laffan | Mizushima | 6 356 |
| Q-JP | Ras Laffan | Negishi | 6 560 |
| Q-JP | Ras Laffan | Niigata | 6 658 |
| Q-JP | Ras Laffan | Oita | 6 250 |
| Q-JP | Ras Laffan | Sakai | 6 377 |
| Q-JP | Ras Laffan | Senboku | 6 377 |
| Q-JP | Ras Laffan | Sodegaura | 6 570 |
| Q-JP | Ras Laffan | Tobata | 6 198 |
| Q-JP | Ras Laffan | Yanai | 6 272 |
| Q-JP | Ras Laffan | Yokkaichi | 6 456 |
| Q-JP | Ras Laffan | Himeji | 6 389 |
| Q-JP | Ras Laffan | Kawagoe | 6 456 |
| Q-KR | Ras Laffan | InCheon | 6 233 |
| Q-KR | Ras Laffan | Pyeong-Taek | 6 232 |
| Q-KR | Ras Laffan | Tong-Yeong | 6 133 |
| Q-MEX | Ras Laffan | Altamira | 9 882 |
| Q-MEX | Ras Laffan | Manzanillo | 12 452 |
| Q-MY | Ras Laffan | Melaka | 3 553 |
| Q-ND | Ras Laffan | Rotterdam | 6 411 |
| Q-P | Ras Laffan | Sines | 5 272 |
| Q-SG | Ras Laffan | Jurong Island | 3 665 |
| Q-SP | Ras Laffan | Barcelona | 4 684 |
| Q-SP | Ras Laffan | Bilbao | 5 903 |
| Q-SP | Ras Laffan | Cartagena | 4 791 |
| Q-SP | Ras Laffan | El Ferrol | 5 669 |
| Q-SP | Ras Laffan | Huelva | 5 134 |
| Q-SP | Ras Laffan | Sagunto | 4 758 |
| Q-TH | Ras Laffan | Map Ta Phut | 4 422 |
| Q-TW | Ras Laffan | Yung-An | 5 292 |
| Q-UK | Ras Laffan | Isle of Grain | 6 342 |
| Q-UK | Ras Laffan | South Hook | 6 137 |
| Q-US | Ras Laffan | Elba Island | 8 716 |
| RU-JP | Sakhalin II | Chita | 1 020 |
| RU-JP | Sakhalin II | Futtsu | 876 |
| RU-JP | Sakhalin II | Hatsukaichi | 1 088 |
| RU-JP | Sakhalin II | Higashi Ohgishima | 888 |
| RU-JP | Sakhalin II | Himeji | 1 184 |
| RU-JP | Sakhalin II | Ishikari | 229 |
| RU-JP | Sakhalin II | Joetsu | 615 |
| RU-JP | Sakhalin II | Kawagoe | 1 018 |
| RU-JP | Sakhalin II | Mizushima | 1 233 |
| RU-JP | Sakhalin II | Nagasaki | 1 075 |
| RU-JP | Sakhalin II | Negishi | 882 |
| RU-JP | Sakhalin II | Niigata | 581 |

| Trade | Loading point | Unloading point | Nautical miles |
|---|---|---|---|
| RU-JP | Sakhalin II | Senboku | 1 173 |
| RU-JP | Sakhalin II | Sodegaura | 892 |
| RU-JP | Sakhalin II | Sodeshi | 934 |
| RU-JP | Sakhalin II | Tobata | 958 |
| RU-JP | Sakhalin II | Yanai | 1 039 |
| RU-KR | Sakhalin II | Incheon | 1 360 |
| RU-KR | Sakhalin II | Tong-Yeong | 1 003 |
| RU-TW | Sakhalin II | Yung-An | 1 841 |
| TT-ARG | Point Fortin | Bahia Blanca | 4 588 |
| TT-BR | Point Fortin | Guanabara Bay | 3 220 |
| TT-BR | Point Fortin | Pecem | 1 680 |
| TT-CA | Point Fortin | Canaport | 2 132 |
| TT-CL | Point Fortin | Mejilllones | 7 545 |
| TT-CL | Point Fortin | Quintero | 6 962 |
| TT-CN | Point Fortin | Dalian | 13 596 |
| TT-CN | Point Fortin | Tianjin | 13 741 |
| TT-DR | Point Fortin | Andres | 683 |
| TT-ISR | Point Fortin | Hadera Gateway | 5 449 |
| TT-JP | Point Fortin | Chita | 13 741 |
| TT-JP | Point Fortin | Joetsu | 13 903 |
| TT-JP | Point Fortin | Kawagoe | 13 739 |
| TT-KR | Point Fortin | Incheon | 13 515 |
| TT-KR | Point Fortin | Pyeong-Taek | 13 515 |
| TT-KR | Point Fortin | Tong-Yeong | 13 416 |
| TT-KW | Point Fortin | Mina Al Ahmadi | 8 674 |
| TT-MEX | Point Fortin | Altamira | 2 277 |
| TT-MEX | Point Fortin | Manzanillo | 10 299 |
| TT-P | Point Fortin | Sines | 3 305 |
| TT-PR | Point Fortin | Penuelas | 560 |
| TT-SG | Point Fortin | Jurong Island | 10 948 |
| TT-SP | Point Fortin | Barcelona | 3 963 |
| TT-SP | Point Fortin | Bilbao | 3 671 |
| TT-SP | Point Fortin | Cartagena | 3 684 |
| TT-SP | Point Fortin | El Ferrol | 3 430 |
| TT-SP | Point Fortin | Huelva | 3 396 |
| TT-TW | Point Fortin | Yung-An | 12 574 |
| TT-UK | Point Fortin | Dragon | 3 720 |
| TT-UK | Point Fortin | Isle of Grain | 4 008 |
| TT-US | Point Fortin | Cove Point | 1 900 |
| TT-US | Point Fortin | Elba Island | 1 707 |
| TT-US | Point Fortin | Everett | 2 032 |
| TT-US | Point Fortin | Sabine Pass | 2 247 |
| YM-CL | Balhaf | Mejilllones | 10 868 |
| YM-CN | Balhaf | Dapeng, Shenzhen | 4 950 |
| YM-CN | Balhaf | Fujian | 5 189 |

# Sea transportation routes (cont'd.)

| Trade | Loading point | Unloading point | Nautical miles |
|---|---|---|---|
| YM-CN | Balhaf | Jiangsu Rudong | 5791 |
| YM-CN | Balhaf | Zhejiang | 6537 |
| YM-F | Balhaf | Fos Cavaou | 3194 |
| YM-IN | Balhaf | Dabhol | 1458 |
| YM-IN | Balhaf | Dahej | 1490 |
| YM-JP | Balhaf | Chita | 6271 |
| YM-JP | Balhaf | Futtsu | 6366 |
| YM-JP | Balhaf | Kawagoe | 6269 |
| YM-JP | Balhaf | Niigata | 6471 |
| YM-JP | Balhaf | Oita | 6063 |
| YM-KR | Balhaf | InCheon | 6046 |
| YM-KR | Balhaf | Pyeong-Taek | 6045 |
| YM-KR | Balhaf | Tong-Yeong | 5946 |
| YM-MEX | Balhaf | Altamira | 8392 |
| YM-MY | Balhaf | Melaka | 3366 |
| YM-TH | Balhaf | Map Ta Phut | 4235 |
| YM-US | Balhaf | Everett | 6595 |

# Inter-Trade

| Re-loading point | Unloading point | Nautical miles |
|---|---|---|
| Cartagena | Dabhol | 4 754 |
| Cartagena | Escobar | 5 606 |
| Cartagena | Incheon | 9 350 |
| Cartagena | Rovigo | 1 467 |
| Fos Cavaou | Barcelona | 184 |
| Fos Cavaou | Chiba | 9 588 |
| Fos Cavaou | Map Ta Phut | 7 432 |
| Fos Cavaou | Pecem | 3 725 |
| Fos Cavaou | Sines | 957 |
| Fos Cavaou | Zeebrugge | 2 035 |
| Freeport | Manzanillo | 12 467 |
| Gwangyang | Himeji | 408 |
| Gwangyang | Senboku | 437 |
| Huelva | Bahia Blanca | 5 611 |
| Huelva | Escobar | 5 375 |
| Huelva | Futtsu | 10 014 |
| Huelva | Guanabara Bay | 4 243 |
| Huelva | Hadera Gateway | 2 388 |
| Huelva | Incheon | 9 693 |
| Huelva | Kawagoe | 9 917 |
| Huelva | Manzanillo | 11 351 |
| Huelva | Pecem | 3 035 |
| Huelva | Yung-An | 8 752 |
| Montoir de Bretagne | Aliaga | 2 622 |
| Montoir de Bretagne | Dahej | 5 990 |
| Montoir de Bretagne | Fos Tonkin | 1 682 |
| Mugardos | Futtsu | 10 548 |
| Mugardos | Guanabara Bay | 4 565 |
| Mugardos | Hadera Gateway | 2 669 |
| Mugardos | Manzanillo | 11 670 |
| Rotterdam | Aliaga | 3 035 |
| Rotterdam | Jiangsu Rudong | 10 715 |
| Rotterdam | Rovigo | 3 087 |
| Rotterdam | Pecem | 4 032 |
| Sabine Pass | Sines | 4 547 |
| Sagunto | Escobar | 5 765 |
| Sagunto | Guanabara Bay | 4 633 |
| Sagunto | Incheon | 9 318 |
| Sagunto | Manzanillo | 11 742 |
| Sagunto | Pecem | 3 435 |
| Sagunto | Sines | 667 |
| Sagunto | Yung-An | 8 376 |
| Sines | Salvador da Bahia | 3 519 |
| Zeebrugge | Guanabara Bay | 5 247 |
| Zeebrugge | Mugardos | 728 |
| Zeebrugge | Sagunto | 1 745 |
| Zeebrugge | Sines | 1 099 |

# 74 Member Companies in 24 countries

GIIGNL (International Group of LNG Importers) is the worldwide association of LNG importers. Founded in 1971, at the outset of the LNG industry, its membership has grown to 74 companies worlwide, comprising nearly all companies active in LNG imports or in the operation of LNG terminals. It is a non profit organization and its resources only come from the membership fees. The association constitutes a forum for exchange of experience among its members, with a view to enhance safety, reliability and efficiency of LNG imports. GIIGNL members are coming from 24 countries located in the main three regions: Americas, 10 members, Asia, 32, Europe, 32.

Every year, GIIGNL conducts a wide survey amongst its members in order to publish this global statistical report, The LNG Industry.

6 companies joined the group in 2013: Dong Naturgas, GNL Italia, Hokkaido Gas Co., Inpex, Polskie LNG and PTT Public Company Ltd.

## AMERICAS - 10 members

BG Group Plc.
Cheniere Energy, Inc.
Chevron Global Gas
Freeport LNG Development, L.P.
GDF SUEZ GAS NA
GNL Quintero S.A.
Repsol Energy Canada
Sempra LNG
Southern LNG Company, LLC
YPF S.A.

## EUROPE - 32 members

BP Global LNG
Botas
Centrica LNG Company
DEPA
Dong Naturgas
Dragon LNG Limited
Dunkerque LNG
Edison S.p.A.
Elengy S.A.
EDF Trading Limited
EDP Energias de Portugal, S.A.
Enagas
Enel Trade
Eni S.p.A.
E.ON Ruhrgas A.G.
Fluxys LNG S.A.
Gas Natural Fenosa
Gate Terminal B.V.
GDF SUEZ
GNL Italia
Iberdrola Generacion S.A.U.
National Grid Grain LNG, Ltd.
N.V. Nederlandse Gasunie
O.M.V. Gas and Power GmbH
Polskie LNG
Ren Atlântico, S.A.
Shell Western LNG B.V.
Sonatrach Gas Marketing UK Limited
South Hook LNG Terminal Company, Ltd.
Statoil ASA
Total S.A.
Vopak LNG Holding B.V.

## ASIA - 32 members

Chubu Electric Power Company, Inc.
CNOOC Gas & Power Group
CPC Corporation, Taiwan
Gail India Limited
Guangdong Dapeng LNG Company, Ltd.
Gujarat State Petroleum Corp. Ltd. (G.S.P.C.)
Hiroshima Gas Company, Ltd.
Hokkaido Gas Co
Inpex
Itochu Corporation
JX Nippon Oil & Energy Corp
Korea Gas Corporation
Kyushu Electric Power Company, Inc.
LNG Japan Corporation
Marubeni Corporation
Mitsubishi Corporation
Mitsui & Company, Ltd.
Nippon Gas Company, Ltd.
Osaka Gas Company, Ltd.
Petronet LNG Limited
PTT Public Company, Ltd.
Saibu Gas Company, Ltd.
Shikoku Electric Power Company
Shizuoka Gas Company, Ltd.
SK E&S Company, Ltd.
Sumitomo Corporation
The Chugoku Electric Power Company, Inc.
The Kansai Electric Power Company, Inc.
The Tokyo Electric Power Company, Inc.
Toho Gas Company, Ltd.
Tohoku Electric Power Company, Inc.
Tokyo Gas Company, Ltd.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